



Naval Education and
Training Command

NAVEDTRA 82700
October 1993
0503-LP-219-0900

Nonresident Training
Course (NRTC)

Photography (Basic)

Only one answer sheet is included in the NRTC. Reproduce the required number of sheets you need or get answer sheets from your ESO or designated officer.

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COMMANDING OFFICER
NETPTDC
6490 SAUFLEY FIELD ROAD
PENSACOLA, FL 32509-5237

Errata #1
Stock Ordering No. 0503-LP-219-0901

25 MAY 99

Specific Instruction and Errata for
Nonresident Training Course

PHOTOGRAPHY (BASIC) NAVEDTRA 82700

1. No attempt has been made to issue corrections for errors in typing, punctuation, etc. that do not affect your ability to answer the question or questions.
2. To receive credit for deleted questions, show this errata to your local course administrator (ESO/scorer). The local course administrator is directed to correct the course and the answer key by indicating the questions deleted.
3. Change the following items in the NRTC:
 - a. Question 1-56: change Alt 3 from "545.45 feet" to "45.46 feet"
 - b. Question 2-75: change Alt 2 from "120°F" to "122°F"
 - c. Question 3-52: change the word "camera" in the question's stem to "light meter"
 - d. Page 36, Figure 5A: change Alt E from "How" to "Who"
 - e. Question 6-15: change the first word in line 2 of the question's stem from "control" to "limit"
 - f. Question 7-10: change the date in line 5 of the question's stem from "1885" to "1985"
 - g. Question 9-1: change Alt 3 from "No. 0" to "No. 3"
 - h. Question 9-70: change Alt 3 from "CC05Y + CC15M only" to "CC05Y + CC10M only"
 - i. Question 10-49: change Alt 3 from "Censorship and physical" to "Censorship and physical security"
 - j. Question 10-49: change Alt 4 from "Physical and cryptographic" to "Physical security and cryptographic."
4. Delete the following questions and leave the corresponding spaces blank on the answer sheets:

Questions: 3-21, 3-27, 3-28, 6-54, 10-45

PHOTOGRAPHY (BASIC)

NAVEDTRA 82700

Prepared by the Naval Education and Training Program Management
Support Activity, Pensacola, Florida

Congratulations! By enrolling in this course, you have demonstrated a desire to improve yourself and the Navy. Remember, however, this self-study course is only one part of the total Navy training program. Practical experience, schools, selected reading, and your desire to succeed are also necessary to successfully round out a fully meaningful training program. You have taken an important step in self-improvement. Keep up the good work.

HOW TO COMPLETE THIS COURSE SUCCESSFULLY

ERRATA: If an errata comes with this course, make all indicated changes or corrections before you start any assignment. Do not change or correct the Training Manual (TRAMAN) or assignments in any other way.

TEXTBOOK ASSIGNMENTS: The TRAMAN for this course is *PHOTOGRAPHY*, NAVEDTRA 12700. The TRAMAN pages that you are to study are listed at the beginning of each assignment. Study these pages carefully before attempting to answer the questions in the course. Pay close attention to tables and illustrations because they contain information that will help you understand the text. Read the learning objectives provided at the beginning of each chapter or topic in the text and/or preceding each set of questions in the course. Learning objectives state what you should be able to do after studying the material. Answering the questions correctly helps you accomplish the objectives.

BLACK DOT INFORMATION: Black dots (●) may be used in the text and correspondence course to emphasize important or supplemental information and to highlight instructions for answering certain questions. Read these black dot entries carefully; they will help you answer the questions and understand the material.

SELECTING YOUR ANSWERS: After studying the TRAMAN, you should be ready to answer the questions in the assignment. Read each question carefully, then select the BEST answer. Be sure to select your answer from the subject matter in the TRAMAN. You may refer freely to the TRAMAN and seek advice and information from others on problems that

may arise in the course. However, the answers must be the result of your own work and decisions. You are prohibited from referring to or copying the answers of others and from giving answers to anyone else taking the same course. Failure to follow these rules can result in suspension from the course and disciplinary action.

SUBMITTING COMPLETED ANSWER SHEETS: Complete all assignments as quickly as possible to derive maximum benefit from the course. As a minimum, you must submit at least one assignment per month. This is a requirement established by the Chief of Naval Education and Training. Failure to meet this requirement could result in disenrollment from the course.

TYPES OF ANSWER SHEETS: If you are a U.S. Navy enlisted member on active duty or a drilling U.S. Naval Reserve enlisted member, you should use the answer sheet attached at the end of this course and follow the instructions in section A below. If you are an enlisted U.S. Naval Reserve member who is not attached to a drilling unit or if you are an officer, a civilian, or a member of the U.S. Army, Air Force, Marine Corps, or Coast Guard, you should use the Automatic Data Processing (ADP) answer sheets included in the course package and follow the instructions in section B.

A. Manually Scored Answer Sheets

If you are a U.S. Navy enlisted member on active duty or attached to a U.S. Naval Reserve drilling unit, your course will be administered by your local command. You must use the answer sheet designed for manual scoring, NETPMSA form 1430/5, Stock

Ordering Number 0502-LP-216-0100. You may get a supply of the forms from your Educational Services Officer (ESO), or you may reproduce the one in the back of this course booklet. DO NOT USE THIS FORM FOR COURSES ADMINISTERED BY NETPMSA.

Recording Information on the Manually Scored Answer Sheets: As you complete each assignment, submit the completed answer sheet to your ESO for grading. You may submit more than one answer sheet at a time. Remember, you must submit at least one assignment each month.

Grading: Your ESO will grade each answer sheet and notify you of any incorrect answers. The passing score for each assignment is 3.2. If you receive less than 3.2 on any assignment, the ESO will list the questions you answered incorrectly and give you an answer sheet marked "RESUBMIT." You must redo the assignment and complete the RESUBMIT answer sheet. The maximum score you can receive for a resubmitted assignment is 3.2.

Course Completion: After you have submitted all the answer sheets and have earned at least 3.2 on each assignment, your command should give you credit for this course by making the appropriate entry in your service record.

Student Questions: If you have questions concerning the administration of this course, consult your ESO.

B. ADP Answer Sheets

If you are an enlisted U.S. Naval Reserve member who is not attached to a drilling reserve unit or if you are an officer, a civilian, or a member of the U.S. Army, Air Force, Marine Corps, or Coast Guard, use the ADP answer sheets provided in your course package. You should use one blank original ADP answer sheet for each assignment. Use only the original ADP answer sheet provided in your course package; NETPMSA will not accept reproductions.

Recording Information on the ADP Answer Sheets: Follow the "MARKING INSTRUCTIONS" on each answer sheet. Be sure that blocks 1, 2, and 3 are filled in correctly. This information is necessary for

your course to be properly processed and for you to receive credit for your work.

As you work the course, be sure to mark your answers in the course booklet because your answer sheets will not be returned to you. When you have completed an assignment, transfer your answer from the course booklet to the answer sheet.

Mailing the Completed ADP Answer Sheets: Upon completing an assignment, mail the completed answer sheet to:

COMMANDING OFFICER
NETPMSA CODE 074
6490 SAUFLEY FIELD RD
PENSACOLA FL 32559-5000

Use envelopes to mail your answer sheets. You must provide your own envelopes or request them from your ESO. You may enclose more than one answer sheet in a single envelope. Remember, regardless of how many answer sheets you submit at a time, NETPMSA should receive at least one assignment a month.

NOTE: DO NOT USE THE COURSE COMMENTS PAGE AS AN ENVELOPE FOR RETURNING ANSWER SHEETS OR OTHER COURSE MATERIALS.

Grading: NETPMSA will grade the answer sheets and notify you by letter concerning your grade for each assignment, your incorrect answers, and your final grade. The passing score for each assignment is 3.2. If you receive less than 3.2 on any assignment, you must rework the assignment. NETPMSA will enclose a new ADP answer sheet in the letter notifying you of the questions you answered incorrectly. You will be required to redo the assignment and resubmit the new answer sheet. The maximum score you can receive for a resubmitted assignment is 3.2.

Course Completion: When you complete the last assignment, fill out the "Course Completion" form in the back of the course and enclose it with your last answer sheet. NETPMSA will issue you a letter certifying that you satisfactorily completed the course. You should make sure that credit for the course is recorded in your service record. YOU MAY RETAIN THE TEXT.

NOTE: YOUR OFFICIAL COURSE COMPLETION DATE WILL BE THE DATE YOUR LAST ASSIGNMENT IS PROCESSED THROUGH THE NETPMSA ADP SYSTEM--NOT THE DATE YOU DEPOSIT THE LAST ASSIGNMENT IN THE MAIL. This is especially important if you are taking the course for Naval Reserve retirement credit. You must mail your answer sheets at least 60 days before your anniversary date. This will provide you with enough time for delays in the mail or reworking failed assignments. DO NOT MAIL YOUR ASSIGNMENTS TO THE NAVAL RESERVE PERSONNEL COMMAND (NRPC).

Student Questions: Refer questions concerning this course to NETPMSA by mail (use the address on page ii) or by telephone: DSN 922-1366 or commercial (904) 452-1366.

NAVAL RESERVE RETIREMENT CREDIT

If you are a member of the Naval Reserve, you will receive retirement points if you are authorized to receive them under current directives governing retirement of Naval Reserve personnel. For the purpose of Naval Reserve retirement, this edition of the course is evaluated at 15 points. These points will be credited to you upon your satisfactory completion of the assignments as follows:

<u>UNIT</u>	<u>ASSIGNMENTS</u>	<u>POINTS</u>
1	1-8	12
2	9-10	3

NOTE: YOUR OFFICIAL COURSE COMPLETION DATE WILL BE THE DATE YOUR LAST ASSIGNMENT IS PROCESSED THROUGH THE NETPMSA ADP SYSTEM--NOT THE DATE YOU DEPOSIT THE LAST ASSIGNMENT IN THE MAIL. Refer to the Course Completion paragraph under section B. ADP Answer Sheets.

COURSE OBJECTIVES

In completing your Nonresident Training Course (NRTC), you will demonstrate knowledge of the subject matter by correctly answering questions on the following topics: Theory of Light and Optical Principles; Light Sensitive Materials; Photographic Filters; Still Cameras and Controls; Basic Photographic Techniques; Photographic Assignments; Portraiture; Copying; Chemical Mixing; Image Processing and Control; Black-and-White Printing; Color Printing; Motion Media; and Job Control and Photographic Finishing.

Naval courses may include several types of questions—multiple-choice, true-false, matching, etc. The questions are not grouped by type but by subject matter. They are presented in the same general sequence as the textbook material upon which they are based. This presentation is designed to preserve continuity of thought, permitting step-by-step development of ideas. Not all courses use all of the types of questions available. The student can readily identify the type of each question, and the action required, by inspection of the samples given below.

MULTIPLE-CHOICE QUESTIONS

Each question contains several alternatives, one of which provides the best answer to the question. Select the best alternative, and blacken the appropriate box on the answer sheet.

SAMPLE

- s-1. Who was the first person appointed Secretary of Defense under the National Security Act of 1947?
- 1. George Marshall
 - 2. James Forrestal
 - 3. Chester Nimitz
 - 4. William Halsey

Indicate in this way on the answer sheet:

	1	2	3	4	
	T	F			
s-1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_ _ _

TRUE-FALSE QUESTIONS

Mark each statement true or false as indicated below. If any part of the statement is false the statement is to be considered false. Make the decision, and blacken the appropriate box on the answer sheet.

SAMPLE

- s-2. All naval officers are authorized to correspond officially with any systems command of the Department of the Navy without their respective commanding officer's endorsement.
- 1. True
 - 2. False

Indicate in this way on the answer sheet:

	1	2	3	4	
	T	F			
s-2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_ _ _

MATCHING QUESTIONS

Each set of questions consists of two columns, each listing words, phrases or sentences. The task is to select the item in column B which is the best match for the item in column A that is being considered. Items in column B may be used once, more than once, or not at all. Specific instructions are given with each set of questions. Select the numbers identifying the answers and blacken the appropriate boxes on the answer sheet.

SAMPLE

In questions s-3 through s-6, match the name of the shipboard officer in column A by selecting from column B the name of the department in which the officer functions. Some responses may be used once, more than once, or not at all.

A. OFFICER

B. DEPARTMENT

- | | |
|-------------------------------|---------------------------|
| s-3. Damage Control Assistant | 1. Operations Department |
| s-4. CIC Officer | 2. Engineering Department |
| s-5. Disbursing Officer | 3. Supply Department |
| s-6. Communications Officer | |

Indicate in this way on the answer sheet:

	1	2	3	4	
	T	F			
s-3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_ _ _
s-4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_ _ _
s-5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_ _ _
s-6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_ _ _

ASSIGNMENT 1

Textbook Assignment: "Theory of Light and Optical Principles." Pages 1-1 through 1-37.

Learning Objective: Identify principles and characteristics of light.

- 1-1. In what range of the electro-magnetic spectrum does light exist?
1. 1nm to 100,000nm
 2. 10nm to 10,000nm
 3. 100nm to 1,000nm
 4. 400nm to 700nm
- 1-2. What theory was published by Max Planck to explain X ray, radiation, and photoelectricity?
1. Wave motion
 2. Quantum
 3. Raster
 4. Electromagnetic
- 1-3. What theory explains reflection, refraction, diffraction, and polarization?
1. Wave motion
 2. Quantum
 3. Photo optics
 4. Electromagnetic
- 1-4. A nanometer is equal to what number of millimeters?
1. 1/10
 2. 1/100
 3. 1/1,000
 4. 1/1,000,000
- 1-5. The speed of light is always constant.
1. True
 2. False
- 1-6. The distance from the crest of one wave to the crest of the next wave of light describes what term?
1. Frequency
 2. Speed
 3. Wavelength
 4. Distribution
- 1-7. What color of light is made up of an even mixture of all the visible wavelengths?
1. White
 2. Black
 3. Blue
 4. Green
- 1-8. The spectral energy of a light source is represented by
1. speed
 2. frequency
 3. wavelength
 4. color temperature
- 1-9. The color temperature of red light is less than the color temperature of blue light.
1. True
 2. False
- 1-10. What scale is used to measure the color temperature of light?
1. Fahrenheit
 2. Celsius
 3. Kelvin
 4. Chromaticity
- 1-11. Color hue is defined as what property of color?
1. Brightness
 2. Purity
 3. Saturation
 4. Color

1-12. The terms dull, bright, vivid, and brilliant are used to describe what color characteristic?

1. Hue
2. Brightness
3. Saturation
4. Purity

Learning Objective: Identify ways in which light reacts with various mediums.

1-13. When light waves encounter an object, which of the following actions may take place?

1. Reflection
2. Absorption
3. Transmission
4. Each of the above

1-14. Specular light strikes a smooth surface at 60 degrees. At what angle is the light reflected?

1. 30 degrees
2. 60 degrees
3. 90 degrees
4. 120 degrees

1-15. Which of the following descriptors best defines an object that is opaque?

1. Very hard
2. Highly reflective
3. Light stopping
4. Each of the above

1-16. A change in direction that occurs when light passes from one transparent medium into another is known by what term?

1. Refraction
2. Reflection
3. Diffraction
4. Dispersion

1-17. What characteristic of light allows a lens to form an image?

1. Reflection
2. Diffraction
3. Refraction
4. Dispersion

1-18. Of the following wavelengths, which one has its speed reduced the most when it enters a medium of higher density?

1. Red
2. Yellow
3. Green
4. Blue

1-19. What term describes the ability of a prism to break up white light into its component colors?

1. Refraction
2. Diffraction
3. Dispersion
4. Polarization

1-20. A light ray is bent as it passes very close to an opaque object. What term is used to describe this event?

1. Dispersion
2. Refraction
3. Polarization
4. Diffraction

1-21. When the motion a light wave is in one direction only, the light is

1. parallel
2. polarized
3. planed
4. directionless

1-22. What type of light is seen as glare?

1. Plane polarized
2. Diffused
3. Tungsten
4. Fluorescent

Learning Objective: Recognize various sources of light and the differences between them.

- 1-23. What color of light is scattered the most by the atmosphere?
1. Red
 2. Green
 3. Yellow
 4. Blue
- 1-24. What is the approximate color temperature of overhead sunlight on a clear day?
1. 2000 K
 2. 3200 K
 3. 5400 K
 4. 60000 K
- 1-25. You have exposed daylight balanced color slide film under fluorescent light without a filter. What color cast do the finished slides have?
1. Blue
 2. Green
 3. Yellow
 4. Red
- 1-26. What is the main purpose of a lamp reflector?
1. To increase the amount of light emitted by a lamp
 2. To diffuse light
 3. To polarize light
 4. To redirect light
- 1-27. Most electronic-flash units are designed to be most efficient when they are at what distance from the subject?
1. 3 to 10 feet
 2. 6 to 12 feet
 3. 10 to 18 feet
 4. 12 to 36 feet

Learning Objective: Identify basic characteristics of photographic lenses.

- 1-28. The inherent errors of a lens are known by what term?
1. Faults
 2. Defects
 3. Aberrations
 4. Parallax
- 1-29. The inability of a lens to focus sharply both horizontal and vertical lines on the same plane is what lens aberration?
1. Astigmatism
 2. Coma
 3. Spherical
 4. Chromatic
- 1-30. The distance from the optical center of the lens to the film plane is 150mm. The image on the film is in sharp focus. The lens is focused on an object at infinity or 640 feet away. What is the focal length of this lens?
1. 50mm
 2. 85mm
 3. 135mm
 4. 150mm
- 1-31. The focal length can be changed in what type of lens?
1. Mirror
 2. Zoom
 3. Macro
 4. Anamorphic
- 1-32. What factor determines the normal focal-length lens for a camera?
1. Film size
 2. Shutter type
 3. Camera size
 4. Lens-to-film distance
- 1-33. Providing the camera-to-subject distance remains unchanged, which of the following focal-length lenses provides the greatest subject area?
1. 200mm
 2. 100mm
 3. 50mm
 4. 25mm

1-34. Which of the following focal-length lenses used at the same lens-to-film distance will produce the largest image of the subject?

1. 135mm
2. 80mm
3. 50mm
4. 25mm

1-35. The angle of field for a normal lens is within a range of how many degrees?

1. 25° to 35°
2. 45° to 55°
3. 75° to 85°
4. 95° to 105°

1-36. What type of lens has an angle of view greater than 55 degrees?

1. Telephoto
2. Mirror
3. Wide angle
4. Long-focal length

1-37. What is the final result when an image is recorded with a lens that has a large diaphragm opening?

1. Moving objects appear sharp
2. All objects within the scene appear sharp
3. Angle of view is increased
4. Only the object the lens is focused on appears sharp

1-38. Photographic perspective depends on the focal length of the lens.

1. True
2. False

1-39. The lens you are using is focused on infinity and set at f/8. The size of the aperture is 1/2 inch. What is the focal length, in inches?

1. 1
2. 2
3. 8
4. 4

Learning Objective: Recognize the function and the effects of the aperture of a lens.

1-40. The lens you are using is set at f/16 and is focused less than infinity. What is the relative aperture of the lens?

1. f/8
2. f/11
3. f/16
4. f/22

1-41. What is the relative aperture of a 6-inch lens with an effective aperture of 1.5 inches?

1. f/4
2. f/5.6
3. f/8
4. f/11

1-42. Three lenses of different focal lengths are used at the same f/stop to photograph the same subject. What lens, if any, produces the brightest image on the film plane?

1. 200mm
2. 50mm
3. 28mm
4. None

1-43. Which of the following terms describes the device within a lens that controls the amount of light passed by the lens to the film plane?

1. Concentricizer
2. Diaphragm
3. Adjuster
4. Obstructor

1-44. What term is used to describe the largest aperture of a lens?

1. Refraction index
2. Closed-down aperture
3. Lens speed
4. Optimum aperture

- 1-45. Which of the following f/stops represents the largest aperture?
1. f/5.6
 2. f/8
 3. f/22
 4. f/32
- 1-46. You have changed the lens setting from f/5.6 to f/16. What term describes the action you have taken?
1. Stopping down
 2. Opening up
 3. Racking out
 4. Sliding back
- 1-47. You have changed the f/stop setting from f/16 to f/8. What amount of light is admitted to the film plane?
1. One half
 2. Two times
 3. One quarter
 4. Four times
- 1-48. A lens set to f/8 produced a correct exposure in 1 second. When you set the lens at f/4, what is the correct exposure time, in seconds?
1. 1
 2. 2
 3. 1/2
 4. 1/4
- 1-49. Of the following f/stops, which one is not a standard, full f/stop?
1. f/1
 2. f/2.5
 3. f/5.6
 4. f/45

Learning Objective: Identify factors that affect the means in which a lens focuses an image.

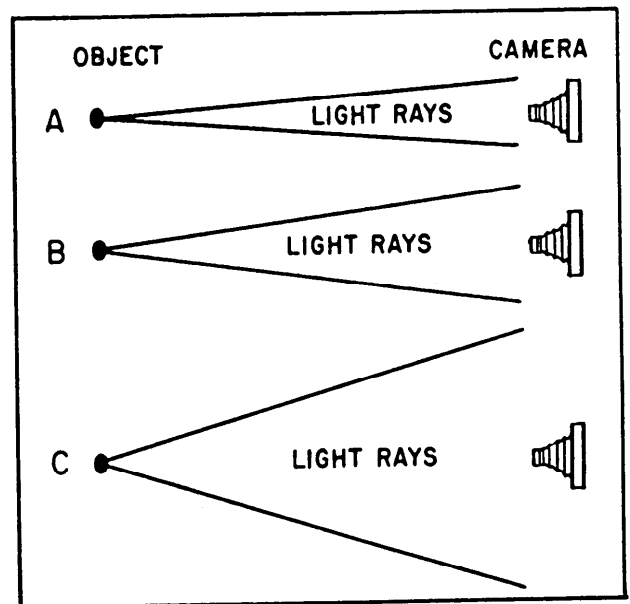


Figure 1A

IN ANSWERING QUESTION 1-50, REFER TO FIGURE 1A.

- 1-50. What object is represented as being the greatest distance from the camera?
1. A
 2. B
 3. C
- 1-51. The principal focal plane is located a total of how many inches behind a 3-inch focal-length lens?
1. 1.5
 2. 6
 3. 3
 4. 4
- 1-52. As an object moves closer to the lens, what distance, if any, must the film plane to the lens change in order to keep the image in sharp focus?
1. It must be increased
 2. It must be decreased
 3. None

- 1-53. What distance is required between the lens and the focal plane so the image formed by a 2-inch focal-length lens is the same size as the subject?
1. 1 inch
 2. 2 inches
 3. 1.4 inches
 4. 4 inches
- 1-54. The distance the focal plane can be moved forward or backward from the plane of sharp focus and still record an acceptably sharp image is known by what term?
1. Depth of field
 2. Circle of confusion
 3. Depth of focus
 4. Hyperfocal distance
- 1-55. What term describes the distance from the lens beyond which all objects are rendered in acceptably sharp focus when the lens is set at infinity?
1. Hyperfocal distance
 2. Depth of field
 3. Depth of focus
 4. Near distance
- 1-56. What is the hyperfocal distance of a 6-inch lens set at f/11 when the permissible circle of confusion is 0.006 inches?
1. 2.38 feet
 2. 36.72 feet
 3. 545.45 feet
 4. 3361.11 feet
- 1-57. Your lens is set at f/11, the hyperfocal distance is 71 feet, and your subject is 112 feet from the camera. You should focus at what distance for maximum depth of field?
1. 35.5 feet
 2. 56.0 feet
 3. 71.0 feet
 4. 112.0 feet
- 1-58. Of the following lenses, which one provides the greatest depth of field when set at f/5.6 and focused on an object 6 feet from the lens?
1. 35mm
 2. 50mm
 3. 80mm
 4. 135mm
- 1-59. Which of the following factors affects depth of field?
1. Lens focal length
 2. Lens f/stop
 3. Camera-to-subject distance
 4. All of the above
- 1-60. You are using a lens focused on the hyperfocal distance which is 50 feet. What is the approximate depth-of-field range?
1. 25 feet to 75 feet only
 2. 25 feet to infinity
 3. 50 feet to infinity only
 4. 75 feet to infinity only
- 1-61. What is the depth of field of a 50mm lens set at f/8 with a permissible circle of confusion of 0.002 inches when it is focused on an object 20 feet from the lens?
1. 10.0 feet to 20.0 feet
 2. 15.7 feet to 23.4 feet
 3. 18.6 feet to 21.7 feet only
 4. 20.0 feet to 23.8 feet only
-
- Learning Objective: Determine the relationship between the subject/image size.
-
- 1-62. A document is 1-inch square. You must photograph it to produce a 4-inch-square image on the film. Using a 6-inch lens, what image focal distance is required?
1. 10 inches
 2. 12 inches
 3. 24 inches
 4. 30 inches

- 1-63. The size of the image formed by a lens depends on which of the following factors?
1. The size of the subject
 2. The lens-to-subject distance
 3. The lens focal length
 4. All of the above
- 1-64. A 10-inch focal-length lens is used to photograph an object 8 feet high from a distance of 28 feet. What image size is on the film plane?
1. 1.25 inches
 2. 2.50 inches
 3. 2.85 inches
 4. 5.70 inches
- 1-65. You are assigned to photograph an object 10 feet wide using a 4x5-inch camera with a 7-inch lens. You must position your camera what distance from the object to produce a 3-inch image?
1. 1.40 feet
 2. 11.65 feet
 3. 23.30 feet
 4. 46.60 feet
- 1-66. Using a 35mm camera with a 50mm lens, you have photographed a subject. However, the shooting-crew supervisor informs you that a 4x5-inch negative is required. You cannot change your shooting position. What focal-length lens should you use on the 4x5 camera to obtain approximately the same coverage produced with the 35mm camera?
1. 360mm
 2. 210mm
 3. 90mm
 4. 65mm

Learning Objective: Identify various types of lenses and their characteristics.

- 1-67. Which of the following are characteristics of a long-focal-length lens?
1. They have a reduced depth of field
 2. They decrease the apparent distance between subjects on different planes
 3. Both 1 and 2 above
 4. They introduce image distortion
- 1-68. A wide-angle lens has which of the following characteristics?
1. Increased depth of field
 2. Exaggerated linear perspective
 3. Increased apparent distance between planes
 4. All of the above
- 1-69. When photographing a building, you notice in the viewfinder that the sides of the building appear to be bending toward the center of the image area. What type of lens is on your camera?
1. Rectilinear
 2. Wide angle
 3. Normal
 4. Telephoto
- 1-70. The distortion caused by wide-angle lenses actually changes perspective.
1. True
 2. False
- 1-71. Which of the following lenses is very useful for taking pictures of extreme closeups shots?
1. Fisheye
 2. Rectilinear
 3. Telephoto
 4. Macro
- 1-72. Of the following lenses, which one is best for taking informal portraits with a 35mm camera?
1. 100mm
 2. 50mm
 3. 35mm
 4. 17mm

1-73. You are photographing a row of aircraft on the flight deck. Using a medium-format camera, you should use which of the following lenses to make the aircraft appear to be parked very close to each other?

1. 500mm
2. 150mm
3. 75mm
4. 40mm

1-74. Of the following characteristics, which one is NOT representative of a mirror lens?

1. Shorter physical size
2. Out-of-focus highlights that record as rings of light
3. Wide range of f/stops
4. Limited depth of field

1-75. What type of lens is used to change the image size without changing the lens-to-film distance?

1. Macro
2. Zoom
3. Mirror
4. Telephoto

ASSIGNMENT 2

Textbook Assignment: "Light-Sensitive Materials" and "Photographic Filters." Pages 2-1 through 3-12.

Learning Objective: Identify basic characteristics of light-sensitive materials.

2-1. What type of salts is used to make photographic film?

1. Gelatin
2. Halide
3. Oxide
4. Silver

2-2. Undyed silver halides are sensitive to what color of light?

1. Blue
2. Green
3. Yellow
4. Red

2-3. What portion of photographic film or paper is light sensitive?

1. Base
2. Emulsion
3. Antihalation backing
4. Overcoating

2-4. What is the primary purpose of the base portion of photographic film and paper?

1. It prevents the emulsion from being damaged
2. It suspends the silver halides
3. It supports the emulsion
4. It contains sensitizing dyes

2-5. Because of the nature of the recording medium used in still video and digital cameras, they must be loaded in complete darkness.

1. True
2. False

2-6. Exposure to light causes what invisible change to a photographic emulsion?

1. Film speed
2. Development
3. Black-metallic silver
4. Latent image

Learning Objective: Identify film characteristics that you must take into consideration when selecting a type of film for a photographic assignment.

2-7. The inherent property of a film emulsion to respond to light is known by what term?

1. Film speed
2. Spectral sensitivity
3. Exposure latitude
4. Emulsion definition

2-8. What organization is responsible for the approval of a uniform set of film-speed standards?

1. Eastman Kodak Company
2. Morgan and Morgan Corporation
3. International Standards Organization
4. Film Speed Organization of America

2-9. A film may be assigned more than one film speed for which of the following reasons?

1. Because the film may be used in hot or cold weather
2. For use with fast or slow shutter speeds
3. Because the emulsion may respond differently to different qualities of light
4. To provide the photographer with an option of shooting fast or slow subject motion

- 2-10. What is/are the numerical value(s) assigned to film for exposure calculation?
1. ISO
 2. Exposure Index
 3. Both 1 and 2
 4. Light-meter Index
- 2-11. What does the term "spectral sensitivity" refer to in photographic emulsions?
1. The manner that the film responds to light only
 2. The intensity of light required to produce the proper exposure
 3. The duration of light or radiant energy required to produce a visible color image
 4. The way the emulsion responds to specific colors of light and invisible radiations
- 2-12. Colorblind emulsions are sensitive to which of the following colors of light?
1. Blue
 2. Green
 3. Red
 4. Yellow
- 2-13. Which of the following is NOT a classification of black-and white film?
1. Infrared
 2. Ultraviolet
 3. Panchromatic
 4. Orthochromatic
- 2-14. Red records on an orthochromatic film in what manner?
1. As a light-blue color
 2. As a dense deposit of silver
 3. As a clear area
 4. As a light-red color
- 2-15. To what type of radiation is a panchromatic emulsion NOT sensitive?
1. Infrared
 2. Ultraviolet
 3. Blue light
 4. Green light
- 2-16. To prevent the exposure of infrared film by UV radiation, you should use what color filter?
1. Blue
 2. Red
 3. Green
 4. Yellow
- 2-17. What areas of a black-and-white negative have the greatest amount of silver deposits?
1. Contrast points
 2. Midtones
 3. Highlights
 4. Shadows
- 2-18. What term describes the amount of silver deposit present in any area of a negative?
1. Highlight
 2. Contrast
 3. Midtone
 4. Density
- 2-19. What term describes the difference in densities between areas of a negative?
1. Contrast
 2. Latitude
 3. Emulsion definition
 4. Resolving power

2-20. Which of the following definitions best describes "emulsion latitude"?

1. The ability of a film to reproduce brightness differences
2. The amount of deviation from the correct exposure that will still produce acceptable densities
3. The evenness of the emulsion thickness applied to the film base
4. The variation in film processing time that still permits the emulsion to respond to the action of the fixing bath

2-21. What is exposure latitude?

1. The difference in negative densities
2. The amount of exposure variation that will still produce an acceptable image
3. The minimum exposure required to produce sufficient shadow detail
4. The amount of density produced by a given exposure

2-22. What factor(s) determine(s) the graininess of a negative?

1. Manufacturing
2. Exposure
3. Development
4. All of the above

2-23. All processed black-and-white film produces images with metallic silver.

1. True
2. False

2-24. The ability of a emulsion to record fine detail is known by what term?

1. Clumping action
2. Resolving power
3. Acutance
4. Graininess

2-25. The ability of an emulsion to produce sharp edges between differences in density is known by what term?

1. Clumping action
2. Resolving power
3. Acutance
4. Graininess

Learning Objective: Recognize components of black-and-white and color films.

2-26. Film is protected from friction, scratches, and abrasions before development by what part of the film?

1. Overcoating
2. Base
3. Antihalation backing
4. Noncurl coating

2-27. What part of the film prevents light from reflecting back from the base and affecting the light-sensitive silver halides?

1. Overcoating
2. Emulsion
3. Antihalation backing
4. Noncurl coating

2-28. The top emulsion layer of color film is sensitive to what color of light?

1. Blue
2. Green
3. Red
4. Yellow

2-29. What is the purpose of the yellow filter incorporated between the blue and green emulsion layers of color film?

1. To enhance the contrast
2. To prevent blue light from affecting the middle and bottom emulsion layers
3. To prevent the film from being affected by UV radiation
4. To aid in printing color negatives

- 2-30. In a color negative, what color is the image of a red subject?
1. Blue
 2. Magenta
 3. Red
 4. Cyan
- 2-31. In color-reversal film, what color is the image of a red subject?
1. Red
 2. Magenta
 3. Blue
 4. Cyan
- 2-32. Daylight color film may be used without filtration under which of the following light sources?
1. Sunlight
 2. Electronic flash
 3. Both 1 and 2
 4. "Daylight" fluorescent lights
- 2-33. As a Navy Photographer's Mate, you should only use a professional type of film.
1. True
 2. False
- 2-34. Instant picture film is very useful when used in which of the following situations?
1. Passport photographs
 2. Identification photographs
 3. Determining test exposures
 4. All of the above

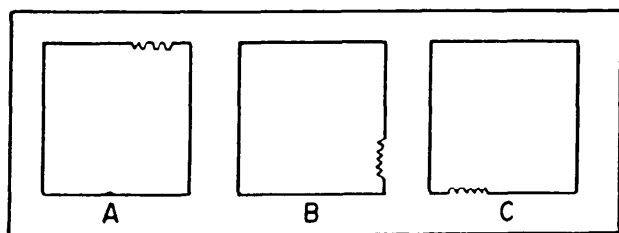


Figure 2A

IN ANSWERING QUESTION 2-35, REFER TO FIGURE 2A.

- 2-35. What segment(s) of figure 2A represent(s) a sheet of film with the emulsion facing you?
1. A
 2. B
 3. C
 4. Each of the above
- 2-36. When images are stored on a still-video floppy disk, what mode(s), if any, provide(s) the highest quality image?
1. Frame only
 2. Field only
 3. Both frame and field modes provide the same image quality
 4. None
- 2-37. What number of images can be stored on a floppy disk when used in a still-video camera set on the "field" setting?
1. 20
 2. 36
 3. 50
 4. 100
-
- Learning Objective: Identify characteristics of photographic papers.
-
- 2-38. When, if ever, is panchromatic printing paper used in making black-and-white prints?
1. When printing high-contrast negatives
 2. When printing low-contrast negatives
 3. When using color negatives to produce black-and-white prints
 4. Never, panchromatic papers are only used for making color prints

2-39. The top emulsion layer of variable contrast, black-and-white paper is sensitive to (a) what color of light and produces (b) what type of contrast?

1. (a) Blue (b) high
2. (a) Green (b) low
3. (a) Blue (b) low
4. (a) Green (b) high

2-40. You are using variable contrast, black-and-white printing paper. The contrast of the print is primarily controlled by what stage of printing.

1. By different exposure times
2. By manipulating the processing time
3. By changing the angle of the projected image
4. By using filters

2-41. Which of the following color papers does NOT directly make a positive image from a color negative?

1. Ektacolor
2. Fujicolor
3. Ektachrome
4. Each of the above

2-42. The top emulsion layer of color paper produces what color of dye?

1. Red
2. Cyan
3. Blue
4. Yellow

2-43. Which of the following paper surfaces should you use to show fine detail in a print?

1. Matte
2. Semimatte
3. Pearl
4. Glossy

2-44. Photographic paper and film should be stored in a location that does not exceed what (a) temperature and (b) relative humidity?

1. (a) 75°F (b) 75%
2. (a) 50°F (b) 50%
3. (a) 75°F (b) 50%
4. (a) 50°F (b) 75%

2-45. You notice that the expiration date on a case of aerial film has expired. Which of the following actions should you take?

1. Discard the film immediately
2. Conduct photographic tests before using the film
3. Ignore the expiration date and use the film for an aerial mission
4. Freeze the film for 24 hours and then use it for Antarctic missions only

Learning Objective: Identify principal types of filters used in black-and-white and color photography.

2-46. What primary factor determines the effectiveness of a photographic filter?

1. The ability of the emulsion to respond to the light passed by the filter
2. The density of the filter
3. The color of the filter
4. The chemicals in which the light-sensitive emulsion is processed

2-47. It is not necessary to use color filters with black-and-white emulsions because only shades of gray are produced.

1. True
2. False

- 2-48. Contrast filters should be used for black-and-white photography for which of the following reasons?
1. To exaggerate a color
 2. To reduce a color
 3. To eliminate a color
 4. Each of the above
- 2-49. You are tasked to copy a document on white paper that contains red, green, and blue lines. You do not want the green lines to be noticeable in the final print. What color filter should you use?
1. Magenta
 2. Red
 3. Green
 4. Cyan
- 2-50. You are using black-and-white panchromatic film under daylight conditions. What color filter should you use to reproduce the colors of the scene with the same brightness relationship as seen by the human eye?
1. No. 8 (yellow)
 2. No. 23A (light Red)
 3. No. 34A (violet)
 4. No. 4 (cyan)
- 2-51. You are photographing a landscape scene with black-and-white panchromatic film. Which of the following filters should you use to reduce the appearance of haze in the final print?
1. Blue
 2. Cyan
 3. Red
 4. Magenta
- 2-52. Light balancing filters are available in what two colors?
1. Yellow and green
 2. Green and red
 3. Blue and red
 4. Blue and yellow
- 2-53. What color of light balancing filter should you use to lower the color temperature of light?
1. Yellow
 2. Green
 3. Red
 4. Blue
- 2-54. What color of light balancing filter should you use to raise the color temperature of light?
1. Yellow
 2. Green
 3. Red
 4. Blue
- 2-55. What type of filter should you use to make minor adjustments to the color quality of light used to expose film?
1. Light balancing
 2. Conversion
 3. Color compensating
 4. Correction
- 2-56. What instrument should you use to determine the color temperature of a light source?
1. Exposure meter
 2. Color analyzer
 3. Color temperature meter
 4. Spot meter
- 2-57. What are the two series of conversion filters?
1. 80 and 81
 2. 80 and 85
 3. 85 and 86
 4. 85 and 90
- 2-58. What color conversion filter is used to expose daylight-type film under tungsten light?
1. Blue
 2. Green
 3. Amber
 4. Cyan

- 2-59. When exposing color film under fluorescent light, you should use what type of filter?
1. Color compensating
 2. Conversion
 3. Correction
 4. Light balancing
- 2-60. What maximum number of CC filters can be used effectively on a camera lens?
1. One
 2. Two
 3. Three
 4. Four
- 2-61. A CC20M filter has a peak density of 0.20 to what color of light?
1. Yellow
 2. Blue
 3. Magenta
 4. Green
- 2-62. What is the complementary color of green?
1. Yellow
 2. Blue
 3. Cyan
 4. Magenta
- 2-63. What combination of complementary colors make up red?
1. Yellow and cyan
 2. Magenta and yellow
 3. Cyan and yellow
 4. Magenta and cyan
- 2-64. What is the equivalent filter pack of a 50G + 20R + 10B CC-filter pack?
1. 40G + 10R
 2. 50G + 20R + 0 ND
 3. 60G + 30R + 20B
 4. 80 ND
- 2-65. Which of the following filters is NOT selective in the color of light it absorbs?
1. Correction
 2. Neutral density
 3. Color compensating
 4. Conversion
- 2-66. What ND filter is used to reduce exposure by two f/stops?
1. .20
 2. 2.00
 3. .30
 4. .60
- 2-67. What color filter is most effective for cutting haze?
1. Red
 2. Yellow
 3. Blue
 4. Green
- 2-68. For which of the following situations may polarizing filters be used?
1. To reduce reflections from water
 2. To reduce the effect of haze
 3. To increase color saturation
 4. Each of the above
- 2-69. Your light meter indicates an exposure of 1/500 sec at f/11. You then add an orange filter with a filter factor of 4. What is your new exposure setting?
1. 1/500 sec at f/22
 2. 1/500 sec at f/8
 3. 1/250 sec at f/11
 4. 1/125 sec at f/11
-
- Learning Objective: Identify the uses for filters in photographic darkrooms.
-

- 2-70. Which of the following light sources is used as a safelight in black-and-white print rooms?
1. Mercury vapor
 2. Sodium vapor
 3. Quartz halogen
 4. Fluorescent
- 2-71. You have a black-and-white negative with high contrast. What color variable-contrast printing filter should you use to produce a print with normal contrast?
1. Blue
 2. Green
 3. Yellow
 4. Magenta
- 2-72. Which of the following filters should always be used in a color printing system?
1. Color compensating
 2. Dichroic
 3. Color printing
 4. Ultraviolet absorbing
- 2-73. What type of filter works on the principle of wavelength interference, rather than wavelength absorption?
1. Color compensating
 2. Color printing
 3. Safelight
 4. Dichroic
- 2-74. CP filters are used the same as CC filters in a color printing system.
1. True
 2. False
- 2-75. Photographic filters should not be exposed to heat above what maximum temperature?
1. 100°F
 2. 120°F
 3. 150°F
 4. 200°F

ASSIGNMENT 3

Textbook Assignment: "Still cameras and Controls." Pages 4-1 through 4-31.

Learning Objective: Recognize similarities and differences among the various categories of cameras and the advantages and disadvantages of each.

Learning Objective: Identify various focusing systems and the importance of subject focus within a scene.

3-1. Which of the following size cameras is most suitable for an assignment that requires a large number of exposures that must be taken in rapid succession?

1. 35mm
2. 2 1/4 x 2 3/4
3. 4x5
4. 8x10

3-2. Which of the following systems allows you to focus and compose with a picture-taking lens?

1. Rangefinder
2. TTL
3. SLR
4. PMS

3-3. On an SLR camera the focal length is fixed and cannot be changed.

1. True
2. False

3-4. What size film is used in a medium-format camera?

1. 35mm only
2. 120 only
3. 220 only
4. 120 and 220

3-5. What size of camera is most suitable for retaining maximum detail in the negative?

1. 35mm
2. 6cn x 7cn
3. 4x5
4. 8x10

3-6. Which of the following focusing systems should you use when the subject must be photographed to exact scale?

1. TTL
2. Ground glass
3. SLR
4. Rangefinder

3-7. Of the following focusing systems, which one is least suitable for photographing a football game?

1. SLR
2. Rangefinder
3. Ground glass
4. Focusing scale

3-8. Which of the following focusing systems does NOT permit you to see depth of field in the viewfinder?

1. SLR
2. TLR
3. Ground glass
4. Rangefinder

3-9. As a Navy Photographer's Mate, you want everything in your photographs to be in sharp focus.

1. True
2. False

3-10. What type of focusing should you use to draw attention to the subject in a photograph?

1. Selective
2. Chosen
3. Pointed
4. Impulse

3-11. Which of the following focal-length lenses used at a given f/stop and lens-to-film distance provides the greatest selective focus affect?

1. 1000mm
2. 400mm
3. 135mm
4. 50mm

3-12. Which of the following factors does NOT affect depth of field?

1. f/stop
2. Lens focal length
3. Shutter speed
4. Subject distance

Learning Objective: Identify purpose and effects of the camera aperture.

3-13. Which of the following camera controls affects the intensity of light falling on the film plane?

1. Shutter
2. Aperture
3. Intensity compensator
4. Preview actuator

3-14. What is the most important factor in controlling depth of field?

1. Shutter speed
2. Subject distance
3. Lens focal length
4. f/stop

3-15. With a given camera and all camera controls remaining constant, what subject distance, in feet, results in the greatest depth of field?

1. 30
2. 20
3. 10
4. 5

3-16. What area of a lens produces the sharpest image?

1. The central part
2. The outer edges
3. Either 1 or 2 above

3-17. Stopping down a lens increases depth of field. In what way, if any, does this action affect image sharpness?

1. It increases overall image sharpness
2. It decreases overall image sharpness
3. None

3-18. The optimum or critical aperture of a lens is generally at what f/stop setting?

1. Wide open
2. Two f/stops from wide open
3. f/11
4. f/32

Learning Objective: Identify purpose and effects of the camera shutter.

3-19. What is the primary function of a camera shutter?

1. To limit the intensity of light emitted to the film
2. To control the quality of light passed to the film
3. To regulate the amount of time that light is permitted to act on the film
4. To stop image motion by limiting the frequency of wave motion permitted to pass through the lens

3-20. Which of the following shutter speeds can be used when a leaf shutter is used with an electronic flash?

1. 1/30 second
2. 1/125 second
3. 1/500 second
4. Each of the above

3-21. What is the primary function of the camera shutter?

1. To control the duration of exposure
2. To control subject movement
3. Both 1 and 2 above
4. To control depth of field

3-22. When increasing the camera shutter speed, you must take what action to expose the film properly?

1. Close down the aperture
2. Open up the aperture
3. Add an ND filter
4. Change the film-speed setting to a higher number

3-23. What sacrifice is made when you increase the camera shutter speed?

1. Camera movement is more apparent
2. A shorter focal-length lens must be used
3. Some depth of field is lost
4. Image sharpness

3-24. You must stop subject motion but cannot afford to loose depth of field. Which of the following actions should you take?

1. Select a faster film
2. Increase the camera-to-subject distance
3. Select a shorter focal-length lens
4. All of the above

3-25. A shutter speed of 1/250 second is required to freeze image motion acceptably. Which of the following shutter speeds can also be used to record the same image motion?

1. 1/30
2. 1/60
3. 1/125
4. 1/500

3-26. When handholding a camera with a 100mm lens, what is the slowest shutter speed you should use?

1. 1/30
2. 1/60
3. 1/125
4. 1/250

3-27. When you are photographing a moving object, which, if any, of the following shutter speeds stops image motion?

1. 1/250
2. 1/500
3. 1/1000
4. None of the above

3-28. Which of the following factors limits the time the image is allowed to move across the film plane?

1. The interval of exposure
2. The direction of subject movement
3. Subject speed
4. Lens focal length

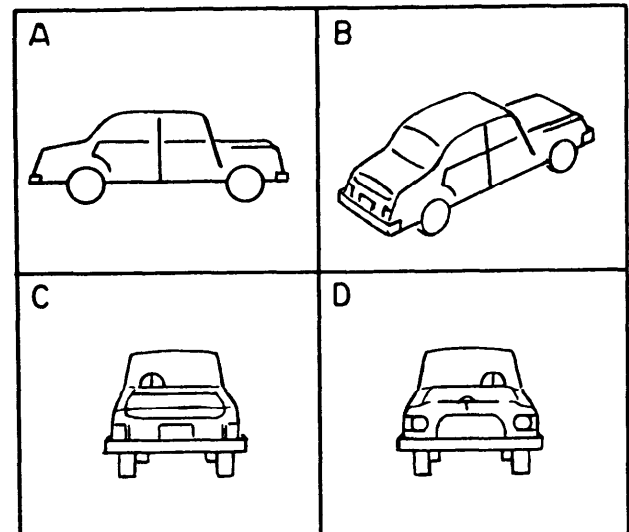


Figure 3A

IN ANSWERING QUESTION 3-29, REFER TO FIGURE 3A.

- 3-29. From a given camera-to-subject distance, what scene requires the fastest shutter speed to stop image movement?
1. A
 2. B
 3. C
 4. D

Learning Objective: Recognize factors that affect the exposure of photographic film.

- 3-30. What two factors control camera exposure?
1. Lens speed and film speed
 2. Shutter speed and lens aperture
 3. Lens aperture and film speed
 4. Film speed and reflected light quality
- 3-31. Your light meter indicates that 1/500 second at f/5.6 will properly expose the film. However, you prefer greater depth of field in the scene. Which of the following equivalent exposures should you use?
1. 1/1000 second at f/4
 2. 1/250 second at f/11
 3. 1/125 second at f/8
 4. 1/60 second at f/16
- 3-32. Which of the following equations represents exposure?
1. $E = I + T$
 2. $H = E \div T$
 3. $E = I \times T$
 4. $I = E \times T$

- 3-33. Your light meter indicates an exposure of 1/60 second at f/4 with Ektachrome ISO 100 film. You then change the film in the camera with Ektachrome ISO 400 film. When photographing the same subject under the same lighting conditions, which of the following camera settings should you make?

1. 1/60 second at f/5.6
2. 1/60 second at f/8
3. 1/500 second at f/4
4. 1/500 second at f/8

- 3-34. On a clear, bright, and cloudless day, the intensity of light remains constant.
1. True
 2. False

DAYLIGHT CONDITIONS	
A.	Bright or hazy sun on light sand or snow
B.	Bright
C.	Cloudy bright
D.	Cloudy
E.	Heavy overcast or shade

Figure 3B

IN ANSWERING QUESTIONS 3-35 THROUGH 3-39, REFER TO FIGURE 3B AND SELECT THE DAYLIGHT CONDITION THAT BEST APPLIES TO THE STATEMENT USED AS THE QUESTION.

- 3-35. The type of daylight upon which basic exposure for an average scene is based:
1. A
 2. B
 3. C
 4. D

3-36. Unobstructed daylight at the beach:

1. A
2. B
3. C
4. D

3-37. Completely diffused daylight:

1. A
2. B
3. C
4. D

3-38. Soft shadows:

1. A
2. B
3. C
4. E

3-39. The sun is not visible and eight times the basic exposure is required:

1. E
2. D
3. c
4. B

IN ANSWERING QUESTIONS 3-40 THROUGH 3-42, USE THE FOLLOWING INFORMATION: THE BASIC EXPOSURE FOR A SCENE IS 1/250 SECOND AT f/16 WITH FRONT SUN LIGHTING.

3-40. Using a shutter speed of 1/250 second, you should use which of the following f/stops when the scene is sidelighted?

1. f/4.5
2. f/5.6
3. f/8
4. f/11

3-41. Which of the following exposures can you use when the scene is backlighted?

1. 1/250 at f/8
2. 1/125 at f/11
3. 1/60 at f/16
4. Each of the above

3-42. Which of the following exposures should you use to produce a silhouette of the scene when it is backlighted?

1. 1/125 at f/32
2. 1/125 at f/22
3. 1/250 at f/16
4. 1/250 at f/11

3-43. You are copying a chart with a 5-inch focal-length lens and a bellows extension of 10 inches. Your handheld light meter indicates an exposure of 1/60 second at f/5.6. With the aperture remaining at f/5.6, you should use what exposure time to expose the film properly?

1. 1/60
2. 1/30
3. 1/15
4. 1/8

3-44. A 6-inch focal-length lens has a bellows extension of 16.5 inches. Your handheld light meter indicates an exposure of 1 second at f/22. What f/stop should you use to expose the film?

1. f/22
2. f/16
3. f/11
4. f/8

IN ANSWERING QUESTIONS 3-45 THROUGH 4-48, USE THE FOLLOWING INFORMATION: THE CORRECT EXPOSURE FOR A GIVEN SCENE IS 1/125 SECOND AT f/11 USING ISO 200 FILM.

3-45. Which of the following exposures should you use when the scene is photographed with ISO 100 film?

1. 1/250 at f/8
2. 1/250 at f/11
3. 1/125 at f/8
4. 1/125 at f/11

3-46. Which of the following f/stops should you use when the scene is photographed with ISO 100 film with a shutter speed of 1/250 second?

1. f/8
2. f/5.6
3. f/4.5
4. f/4

3-47. Which of the following f/stops can you use when the scene is photographed with ISO 400 film with a shutter speed of 1/125 second?

1. f/32
2. f/22
3. f/16
4. f/8

3-48. Which of the following exposures can you use when the scene is photographed with ISO 400 film?

1. 1/1000 at f/5.6
2. 1/500 at f/8
3. 1/250 at f/11
4. Each of the above

3-49. The f/16 rule for exposure calculation only applies to black-and-white photography.

1. True
2. False

Learning Objective: Identify various methods used in determining exposure with a light meter.

3-50. What means provides the most consistent way of determining film exposure?

1. Film data sheets
2. f/16 rule
3. Pocket calculator
4. Light meter

3-51. You are taking an incident light-meter reading. From what position should the light-meter reading be taken?

1. Subject
2. Camera
3. Light source

3-52. You are taking a reflected light-meter reading. You should point the camera in what direction?

1. Toward the subject
2. Toward the camera
3. Toward the light source

3-53. What type of light meter has a diffusing dome that covers the photoelectric cell?

1. Spot
2. Reflected
3. Incident
4. Inversion

3-54. You are using black-and-white film to photograph a green car. You take a reflected light-meter reading from the car. In a properly exposed and processed print, the car has what appearance?

1. Bright white
2. Middle gray
3. Dark black

3-55. You are photographing an average contrast scene and you base your camera exposure on a reflected light-meter reading from the shadow area. After it has been processed properly, the negative has what appearance?

1. Detail in the shadow areas only
2. Washed-out highlights only
3. Both 1 and 2 above
4. Very high contrast

- 3-56. You are taking an overall reflected light-meter reading of a subject that has almost equal areas of highlights and shadows. What type of light-meter reading are you taking?
1. Brightness range
 2. Darkest object
 3. Brightest object
 4. Integrated
- 3-57. You have taken an average light-meter reading of a predominately light scene. The meter indicates an exposure of 1/250 second at f/11. Which of the following exposures should you give the film to reproduce shadow detail?
1. 1/125 at f/11
 2. 1/500 at f/11
 3. 1/125 at f/8
 4. 1/1000 at f/5.6
- 3-58. You took two light-meter readings from a scene. One reading was taken from the darkest object with which you desire details and the other was taken from the lightest area where detail is desired. However, these two objects do not represent the darkest or lightest objects within the scene. What type of reflected light-meter reading did you take?
1. Integrated
 2. Brightness range
 3. Average
 4. Substitution
- 3-59. You are photographing a Navy ship that is probably too distant to get an accurate light-meter reading. You then base your exposure on a gray card. What method of light-meter reading did you use?
1. Average
 2. Integrated
 3. Brightness range
 4. Substitution
- 3-60. You are photographing an average scene but take a light-meter reading from a white card. You desire detail in both shadow and highlight areas. Which of the following exposure compensations should you take?
1. Close down two f/stops
 2. Close down one f/stop
 3. Open up two f/stops
 4. Open up one f/stop
- 3-61. Which of the following statements regarding exposure bracketing is NOT true?
1. Bracketing is permissible for all films, both black and white and color
 2. Bracketing produces varying exposures
 3. Bracketing can be used but precise exposure for color slide film is required
 4. Bracketing should not be used for black-and-white transparencies
- 3-62. You have overexposed color reversal film by one f/stop and have processed the film normally. The film has what general appearance?
1. It is very dark
 2. It is washed out
 3. It has more color saturation
 4. It has excessive contrast
- 3-63. You have processed a roll of negatives normally. Each frame of the roll appears to be overexposed by one f/stop. What is the probable cause?
1. The light meter was set to the wrong ISO
 2. Light entered the viewfinder while the light-meter reading was being taken
 3. A very bright area of the scene influenced the light meter
 4. The batteries in the light meter were too weak

Learning Objective: Recognize various functions of a view camera.

- 3-64. Of the following types of cameras, which one provides movements and adjustments that permit distortion correction?
1. Single-lens reflex
 2. Twin-lens reflex
 3. View
 4. Direct-vision viewfinder
- 3-65. View cameras have all but which of the following parts?
1. Monorail
 2. Bellows
 3. Ground glass
 4. Viewfinder

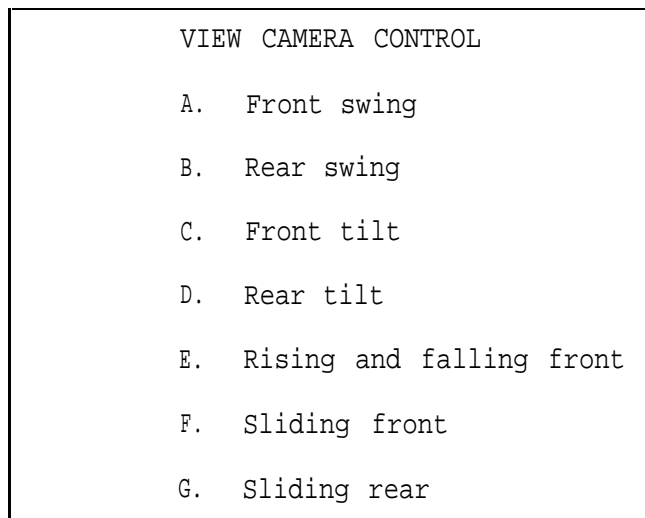


Figure 3C

IN ANSWERING QUESTIONS 3-66 THROUGH 3-71, REFER TO FIGURE 3C AND SELECT THE VIEW-CAMERA CONTROL THAT PROVIDES THE CORRECTION USED AS THE QUESTION.

- 3-66. Centers the image vertically:
1. C
 2. D
 3. E
 4. F

- 3-67. Centers the image horizontally:
1. A
 2. C
 3. E
 4. G
- 3-68. Controls distortion of the vertical plane:
1. B
 2. D
 3. E
 4. G
- 3-69. Controls distortion of the horizontal plane:
1. B
 2. D
 3. F
 4. G
- 3-70. Increases depth of field of the horizontal plane:
1. A
 2. C
 3. E
 4. F
- 3-71. Increases depth of field of the vertical plane:
1. A
 2. C
 3. E
 4. G
- 3-72. When you are initially setting up the view camera, all controls are lined up and no corrective movements are set. What is this position called?
1. Set up
 2. Initial
 3. Neutral
 4. Starting
- 3-73. What total number of vertical or horizontal planes can be corrected with a view camera?
1. One
 2. Two
 3. Three
 4. Four

Learning Objective: Recognize differences and similarities of electronic and conventional cameras.

- 3-74. Which of the following electronic cameras provides the highest resolution?
1. Still video
 2. Digital
 3. Analog
 4. Each provides the same resolution
- 3-75. How does the angle of view of a DCS camera compare to the angle of view of a 35mm camera?
1. They are identical
 2. It is less than the 35mm
 3. It is greater than the 35mm

ASSIGNMENT 4

Textbook Assignment: "Basic Photographic Techniques." Pages 5-1 through 5-37.

Learning Objective: Identify general guidelines used in holding cameras steady.

- | | |
|--|---|
| <p>4-1. What is the best way to support a camera?</p> <ol style="list-style-type: none">1. By using a tripod2. By handholding it3. By holding it against a building4. By using a neck strap <p>4-2. Under normal circumstances, you should NOT handhold a camera at shutter speeds that exceed what exposure time?</p> <ol style="list-style-type: none">1. 1/500 sec2. 1/250 sec3. 1/125 sec4. 1/60 sec <p>4-3. Holding the camera steady is most critical when using what focal-length lens?</p> <ol style="list-style-type: none">1. 35mm2. 50mm3. 100mm4. 200mm <p>4-4. When handholding a camera with a 250mm focal-length lens, you should use which of the following shutter speeds?</p> <ol style="list-style-type: none">1. 1/250 sec2. 1/125 sec3. 1/60 sec4. 1/30 sec <p>4-5. What method(s) is/are used to prevent camera shake?</p> <ol style="list-style-type: none">1. Locking the mirror up on an SLR camera2. A tripod3. A cable release4. Each of the above | <p>4-6. To obtain high-quality photographs, you must always use a tripod.</p> <ol style="list-style-type: none">1. True2. False <p>4-7. The use of a monopod is NOT recommended below what shutter speed?</p> <ol style="list-style-type: none">1. 1/15 sec2. 1/30 sec3. 1/60 sec4. 1/125 sec <hr/> <p>Learning Objective: Identify elements of photographic composition.</p> <hr/> <p>4-8. For photographers to be creative, they must have which of the following attributes?</p> <ol style="list-style-type: none">1. An ability to select state of the art equipment2. An ability to handhold the camera at slow shutter speeds3. An ability to see what the camera sees4. An ability to selectively see only important details within a scene <p>4-9. Photographic composition can be improved by which of the following methods?</p> <ol style="list-style-type: none">1. By looking all around within the viewfinder2. By practice only3. By analyzing photographs used in various medias4. All of the above |
|--|---|

- 4-10. A photograph should have what maximum number of center(s) of interest?
1. One
 2. Two
 3. Three
 4. Four
- 4-11. Which of the following methods should you NOT use to draw viewer attention to the center of interest in a photograph?
1. Compose the subject with more than one object
 2. Use a contrasting background to separate the subject
 3. Place the subject in the center of the picture whenever possible
 4. Use lines to draw attention to the subject
- 4-12. You are photographing a scene and people are included, but they are not the center of interest. The people should be composed in the photograph in what manner?
1. In the foreground only
 2. Looking at the subject
 3. As far from the subject as possible
 4. Looking directly into the camera
- 4-13. Which of the following statements regarding simplicity in photographic composition is true?
1. Because of today's advanced technology, a photograph should not be simple
 2. Simple pictures are monotonous and are rejected by most viewers
 3. Simple pictures can be used to make a clear, strong statement
 4. The most successful photographers limit simplicity by having at least two points of interest in each picture
- 4-14. You are photographing the CO of your ship and want him to appear in the picture as a domineering man. What camera angle should you use?
1. Low
 2. High
 3. Eye level
- 4-15. You are photographing a person who is running. What viewpoint should you use to enhance the feeling of speed?
1. Low
 2. High
 3. Eye level
- 4-16. You are photographing a refugee child. From what viewpoint should you take the picture to emphasize the illusion of little strength?
1. Low
 2. High
 3. Eye level
- 4-17. In a photograph, two objects, one on each side of the picture, appear to have equal weight. However, the picture is not symmetrical. What type of balance, if any, has been achieved?
1. Asymmetrical
 2. Informal
 3. Formal
 4. None
- 4-18. A photograph shows several objects. There is an obvious difference in size and weight of the objects. However, the picture still gives the illusion of balance. What type of balance, if any, has been achieved?
1. Formal
 2. Informal
 3. Symmetrical
 4. None

4-19. Which of the following statements concerning photographic balance is NOT true?

1. Objects in the upper part of a picture appear to have more weight than objects in the lower part of the picture
2. Objects close to the middle of a picture appear lighter than objects at the edge of the picture
3. Irregular shapes give the impression of being lighter than regular shapes
4. When an object is isolated, the weight of the object appears to decrease

4-20. In most photographs, an object within the picture is first identified by

1. weight
2. tone
3. form
4. shape

4-21. What is the three-dimensional equivalent of shape?

1. Weight
2. Tone
3. Form
4. Balance

4-22. Which of the following photographic techniques best emphasizes the shape of an object?

1. Silhouette
2. Balance
3. Texturizing
4. Three-dimensional lighting

Learning Objective: Identify methods in which lines are used for photographic composition.

4-23. Lines that lead the eye or direct attention within a photograph are known by what term?

1. Lines of direction
2. Lines of unification
3. Leading lines
4. Linear-perspective lines

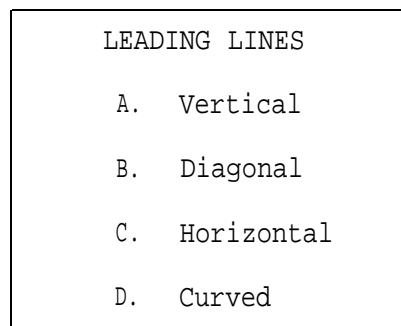


Figure 4A

IN ANSWERING QUESTIONS 4-24 THROUGH 4-36, REFER TO FIGURE 4A. SELECT THE LEADING LINE USED TO PRODUCE THE MOOD THAT IS USED AS THE QUESTION.

4-24. Strength:

1. A
2. B
3. C
4. D

4-25. Graceful movement:

1. A
2. B
3. C
4. D

4-26. Peace:

1. D
2. C
3. B
4. A

4-27. Dignity:

1. A
2. B
3. C
4. D

4-28. Action:

1. D
2. C
3. B
4. A

4-29. Rigidity:

1. A
2. B
3. C
4. D

4-30. Quietness:

1. D
2. C
3. B
4. A

4-31. Smoothness:

1. A
2. B
3. C
4. D

4-32. Grace:

1. D
2. C
3. B
4. A

4-33. Power:

1. D
2. C
3. B
4. A

4-34. Speed:

1. A
2. B
3. C
4. D

4-35. Tranquility:

1. A
2. B
3. C
4. D

4-36. Solidarity:

1. A
2. B
3. C
4. D

Learning Objective: Recognize compositional guidelines in which patterns are used for photography.

4-37. The use of patterns can provide which of the following effects in photographic composition?

1. Support of the elements within a picture
2. Add interest to the picture
3. Overwhelm the viewer
4. Each of the above

4-38. What is the most common pattern used in photographic composition?

1. Line
2. Shape
3. Color
4. Tone

4-39. What key element of composition provides apparent depth to photographs?

1. Lines
2. Shape
3. Shadows
4. Texture

Learning Objective: Identify methods used to draw viewer attention to the center of interest in a photograph.

4-40. Which of the following elements of photographic composition can you use to draw viewer attention to the center of interest?

1. Lighting
2. Texture
3. Contrast
4. All of the above

- 4-41. The view of a gray ship on a foggy morning is an example of what type of scene?
1. Low contrast
 2. Flat
 3. Both 1 and 2 above
 4. Contrasty
- 4-42. The view of a white sailboat in dark-blue water on a clear, sunny day is an example of what type of scene?
1. Low contrast
 2. Flat
 3. Both 1 and 2 above
 4. Contrasty
- 4-43. A photographic technique used to draw viewer attention to the center of interest by surrounding the subject with related objects is known by what term?
1. Keystoning
 2. Framing
 3. High keying
 4. Desegregation
- 4-44. Which of the following techniques can you use to separate the subject from the foreground or background?
1. A large f/stop
 2. Pan the subject
 3. Move in closer to the subject
 4. All of the above
- 4-45. What aspect of good composition is used when the viewer of a photograph gets a feeling of volume, space, depth, and distance?
1. Background
 2. Foreground
 3. Perspective
 4. Framing
-
- Learning Objective: Recognize various types of perspectives and how they are used in photographic composition.
-

TYPES OF PERSPECTIVE	
A.	Linear
B.	Rectilinear
C.	Vanishing Point
D.	Height
E.	Overlap
F.	Dwindling Size
G.	Volume
H.	Atmospheric

Figure 4B

IN ANSWERING QUESTIONS 5-46 THROUGH 5-54, REFER TO FIGURE 4B. SELECT THE TYPE OF PERSPECTIVE THAT BEST APPLIES TO THE STATEMENT USED AS THE QUESTION.

- 4-46. Two parallel roads seem to converge in the background of the picture:
1. A
 2. D
 3. F
 4. H
- 4-47. Straight, parallel, horizontal lines in the subject are recorded on the film as straight lines:
1. A
 2. B
 3. D
 4. H
- 4-48. Parallel lines in a photo seem to meet outside of the picture:
1. A
 2. C
 3. E
 4. H

- 4-49. The distance from the bottom of a picture where the base of an object on the ground begins:
1. D
 2. E
 3. F
 4. G
- 4-50. Several objects within a photograph partly hide one another:
1. C
 2. D
 3. E
 4. G
- 4-51. A number of similar objects within a photograph are shown as different sizes:
1. B
 2. D
 3. F
 4. G
- 4-52. The size of objects within a photograph gives the viewer a clue as to distance:
1. A
 2. C
 3. E
 4. F
- 4-53. The length of shadows provides an idea of the image size of the subject:
1. B
 2. D
 3. E
 4. G
- 4-54. A photograph shows distant objects somewhat obscured by haze:
1. H
 2. F
 3. D
 4. C
- 4-55. Which of the following factors affect linear perspective?
1. Lens-to-subject distance and lens focal length
 2. Lens-to-subject distance and object size
 3. Object size and lens focal length only
 4. Object size and object-to-camera distance
- 4-56. What type of perspective is produced by a panoramic lens?
1. Concave
 2. Cylindrical
 3. Rectilinear
 4. Convex
- 4-57. Two identical objects at different distances from the camera are recorded on film in different contrasts. This difference in contrast provides the viewer with what perception?
1. Color saturation
 2. Brightness
 3. Distance
 4. Sharpness
-
- Learning Objective: Identify that various lighting conditions affect the appearance of the subject.
-
- 4-58. Which of the following terms best describes color saturation?
1. Chroma
 2. Brightness
 3. Hue
 4. Value
- 4-59. Which of the following statements concerning front lighting on a clear day is true?
1. It gives an impression of depth to the photograph
 2. It adds a flattened effect
 3. It emphasizes the texture of the subject
 4. It aides in bringing out the finer details of the subject

4-60. You are tasked to photograph the flight deck of your ship after a new coat of non-skid has been applied. What time of day is best to photograph the flight deck to emphasize the texture of the newly applied non-skid?

1. 1000
2. Noon
3. 1400
4. Early morning

4-61. What type of lighting should you use outdoors to produce a silhouette photograph?

1. Back
2. Side
3. Front
4. 45 degree

4-62. You have processed a roll of daylight-balanced slide film. After removing the film from the dryer, you notice all of the frames taken indoors have a greenish cast. Which of the following light sources was most likely used to photograph the indoor scenes?

1. Electronic flash
2. Tungsten
3. Sodium vapor
4. Fluorescent

Learning Objective: Identify proper techniques used in producing images with electronic-flash units.

4-63. Which of the following factors pertaining to electronic-flash units always remains constant?

1. The f/stop being used
2. The effective candlepower seconds (ECPS)
3. The guide number
4. The film speed

4-64. What two factors are used to determine the guide number of an electronic flash?

1. ECPS and flash-to-subject distance
2. Film speed and flash-to-subject distance
3. ECPS and film speed only
4. f/stop and flash-to-subject distance

4-65. Which of the following is NOT a factor in obtaining correct exposures with an electronic flash and a lens with a leaf shutter?

1. Shutter speed
2. ISO of the film
3. Flash-to-subject distance
4. f/stop

4-66. Of the following flash techniques, which one is least desirable when you are photographing people?

1. Position the flash above the lens
2. Bounce the light from a white ceiling
3. Position the flash below the lens
4. Place diffusion material in front of the flash

4-67. Which of the following actions should you take to minimize the affect of red eye?

1. Have the subject look directly into the lens
2. Move the flash away from the lens axis
3. Move the flash closer to the lens axis
4. Reduce the ambient room light

- 4-68. You are using the bounce-lighting technique with an electronic flash set to "manual." The flash-to-ceiling-to-subject distance is 14 feet. The guide number of the flash is 220. What f/stop should you use to expose the film correctly?
1. f/16
 2. f/11
 3. f/8
 4. f/5.6
- 4-69. You are using an electronic-flash unit. Which of the following techniques should you use to minimize distracting background shadows?
1. Hold the flash above the lens
 2. Bounce the flash off the ceiling or bulkhead
 3. Diffuse the light from the flash unit
 4. Each of the above
- 4-70. What is the best general lighting ratio for both black-and-white and color photography?
1. 1:1
 2. 2:1
 3. 3:1
 4. 5:1
- 4-71. You are using two flash units with the same ECPS to illuminate the subject. You should place (a) the main light and (b) the fill light at which of the following distances from the subject to achieve a 3:1 lighting ratio?
1. (a) 8 feet (b) 11 feet
 2. (a) 6 feet (b) 6 feet
 3. (a) 4 feet (b) 16 feet
 4. (a) 4 feet (b) 8 feet
- 4-72. A common occurrence with the synchro-sunlight technique is it produces images of the subject that appear as though they were taken at night with a single flash unit. What is the most probable cause of this problem?
1. The flash unit was not powerful enough
 2. The flash illumination overpowered the sunlight
 3. The aperture used was too wide
 4. The lens was not synchronized with the flash unit
- 4-73. What is the first step in calculating synchro-sunlight exposure?
1. Determine the correct daylight exposure
 2. Determine the desired flash-to-subject distance
 3. Establish the camera-to-subject distance
 4. Establish the camera-to-flash distance
- 4-74. You are using an electronic flash unit to light a subject 20-feet away at night. The indicated f/stop on the flash unit is f/11. What f/stop should you use to expose the subject?
1. f/16
 2. f/11
 3. f/8
 4. f/5.6
- 4-75. You are using two flash units of equal intensity that are equidistant from the subject to illuminate the same area of the subject. The calculated f/stop for one flash unit is f/16. What f/stop should you use to expose the image?
1. f/11
 2. f/16
 3. f/22
 4. f/32

ASSIGNMENT 5

Textbook Assignment: "Photographic Assignments." Pages 6-1 through 6-44.

Learning Objective: Select equipment and techniques best suited for photographing people.

- 5-1. Which of the following statements will best determine your success as a Navy Photographer's Mate?
1. Use only state-of-the-art equipment
 2. Plan for each of your assignments
 3. Use professional film only
 4. Use a 4x5 view camera for the majority of your photographic assignments
- 5-2. The UIC of your imaging facility is 32509. Which of the following serial numbers best represents a local serial number for a camera assigned to your unit?
1. L-069
 2. L/S 32509-069
 3. 069-L-32509
 4. 32509-069
- 5-3. When photographing people, you should strive to achieve which of the following objectives?
1. Display the subject's character
 2. Identify the person clearly only
 3. Exaggerate the facial features of the subject
 4. Always portray the subject in a pleasing, flattering manner
- 5-4. For you to make a candid photograph of a person, the subject must not know that his/her photograph is being taken.
1. True
 2. False
- 5-5. You should normally select which of the following lenses for a 35mm camera to shoot candid photographs?
1. Fisheye
 2. 35mm
 3. 50mm
 4. 135mm
- 5-6. Which of the following statements regarding the technique of framing people in their environment is true?
1. The "frame" should be a subtle part of the photo
 2. The "frame" should be exaggerated
 3. The "frame" must completely surround the subject
 4. The "frame" should be in front of the subject
- 5-7. You are photographing people working in their environment. Which of the following aspects of the finished product is extremely important?
1. The face of the subject must be in full view
 2. The subject must be actually working
 3. The props used in the photograph must be technically correct
 4. A low angle should be used to portray the person in power
- 5-8. In a formal group picture, attention must not be drawn to any one individual in the photograph. However, in an informal group photograph, attention should be drawn toward the most senior member of the group.
1. True
 2. False

- 5-9. You are taking a formal group photograph of eight people. You should arrange them in a total of how many rows?
1. One
 2. Two
 3. Three
 4. Four
- 5-10. You are making a formal group picture of an admiral's staff. The staff consists of the admiral, three captains, seven commanders, two lieutenants, and three CPOs. The admiral should be placed in what location for the picture?
1. On the far right end of the first row
 2. In the center of the back row
 3. In the center of the middle row
 4. In the center of the first row
- 5-11. Which of the following elements of a group photograph is the most difficult to control?
1. The viewpoint
 2. The composition
 3. The people
 4. The distracting background
- 5-12. To take action photographs successfully, you should perform which of the following actions?
1. Anticipate the action
 2. Know the photographic equipment being used
 3. Learn something about the action
 4. All of the above
- 5-13. Action should always be photographed at what time?
1. At the peak
 2. Directly after the peak
 3. Immediately before the peak
- 5-14. You are photographing the Secretary of the Navy presenting a Purple-Heart Medal to an Airman Recruit. Your battle group flag officer and your CO are also involved in the award ceremony. What person should you concentrate on as the center of interest?
1. Secretary of the Navy
 2. Admiral
 3. Commanding Officer
 4. Airman Recruit
-
- Learning Objective: Recognize basic principles of caption writing.
-
- 5-15. Which of the following elements is NOT a basic requirement in caption writing?
1. Explanation
 2. Identification
 3. Credit line
 4. Background information
- 5-16. In a picture caption, what sentence is most important?
1. First
 2. Middle
 3. Last
 4. Closing
- 5-17. When you are writing captions, they should always be written in what (a) voice and (b) tense?
1. (a) Passive (b) past
 2. (a) Active (b) past
 3. (a) Passive (b) present
 4. (a) Active (b) present
- 5-18. The amount of background information included in a caption is determined primarily by which of the following factors?
1. The way the final picture is to be used
 2. The location in which the final picture is to be used
 3. Both 1 and 2 above
 4. The ethnic background of the subject

CAPTION WRITING ELEMENTS	
A.	What
B.	Where
C.	When
D.	Why
E.	How

Figure 5A

IN ANSWERING QUESTIONS 5-19 THROUGH 5-22, SELECT THE CAPTION WRITING ELEMENT THAT BEST APPLIES TO THE STATEMENT USED AS THE QUESTION.

5-19. Testing squadron readiness:

1. A
2. B
3. D
4. E

5-20. During July and September:

1. E
2. C
3. B
4. A

5-21. Falling in for muster:

1. A
2. B
3. C
4. D

5-22. On board the USS *Lincoln*:

1. D
2. c
3. B
4. A

5-23. When following the general guidelines for caption writing, you should limit the words to what number?

1. 12
2. 25
3. 50
4. 100

5-24. What element is the most important part of caption writing?

1. Explaining the action
2. Caption length
3. Identifying principal subjects
4. Credit line

5-25. Of the four methods of identifying persons in writing a caption, what method is best?

1. Obvious contrast
2. Elimination
3. From the left
4. Action

5-26. What is the least desirable method of identification used in caption writing?

1. From the left
2. Elimination
3. Obvious contrast
4. Action

Learning Objective: Recognize methods used for investigative photography.

5-27. When photographing a scene as part of an investigation, you should always include which of the following items?

1. The investigative team
2. An overall shot of the scene
3. Close-up photographs of each object in the scene
4. Fingerprints

5-28. You are assigned to take photographs for an investigation. You trip accidentally and knock over several items. Which of the following actions should you take?

1. Photograph the items as they now appear
2. Rearrange the objects as they were and then photograph them
3. Inform the investigative team of your accidental act
4. Say nothing unless asked

5-29. Using color film to photograph the scene of a fire has what primary advantage over black-and-white film?

1. It can be processed faster
2. It records finer detail
3. It can assist in identifying the types of materials being burned
4. It records blackened and charred objects better

5-30. You are taking photographs of a burned-out building. Your basic flash exposure indicates an exposure of f/11. Which of the following aperture settings should you use?

1. f/16
2. f/11
3. f/8
4. f/5.6

5-31. What is the primary purpose of aircraft-accident photography?

1. To identify the person(s) at fault
2. To prevent future accidents
3. To establish the primary cause of the accident
4. To provide photographs for safety grams

5-32. What type of information is NOT required on photographs of an aircraft accident?

1. Type of aircraft
2. Date of accident
3. Name of pilot(s)
4. Type of accident

Learning Objective: Select equipment and methods used in product photography.

5-33. When used properly, which of the following cameras provides the best results when you are photographing small parts in a studio?

1. 35mm SLR
2. Medium-format SLR
3. Medium-format TLR
4. 4x5 view

5-34. The most effective main light for product photography is provided by which of the following light sources?

1. Spotlight
2. Floodlight
3. Fluorescent bulbs
4. Plane reflectors

5-35. In product photography, where is the main light generally located?

1. High and in front of the subject
2. Below and to the side of the subject
3. High and behind the subject
4. Directly above the subject

5-36. In product photography, the subject should appear as though it is illuminated by what number of light source(s)?

1. One
2. Two
3. Three
4. Four

5-37. In the studio, which of the following types of lighting can be used to simulate the light from an overcast sky?

1. Spot
2. Tent
3. Key
4. Flood

- 5-38. When establishing the lighting for a product, you should view the subject from what position?
1. The main light
 2. The fill light
 3. Above the subject
 4. The camera
- 5-39. What type of lighting is used to emphasize the texture of a product?
1. Tent
 2. Fill
 3. Cross
 4. 45 degree
- 5-40. You are using color film for product photography. The areas between the highlights and shadows where you want to record detail should not exceed what number of f/stops?
1. Seven
 2. Six
 3. Five
 4. Four
- 5-41. Your light meter indicates an exposure of 7 seconds at f/8. What is your exposure using the painted light technique?
1. 7 seconds at f/8
 2. 14 seconds at f/4
 3. 14 seconds at f/8
 4. 21 seconds at f/8
- 5-42. When using the painted-light technique, you should use what minimum exposure time?
1. 5 seconds
 2. 10 seconds
 3. 20 seconds
 4. 25 seconds
- 5-43. You are using a mirror to photograph a broken fitting in the wheel well of an aircraft. The broken fitting-to-camera distance is 27 inches, the mirror-to-fitting distance is 19 inches, and the camera-to-mirror distance is 33 inches. What focusing distance, in inches, should you set on the camera lens?
1. 79
 2. 60
 3. 52
 4. 46
- 5-44. You are photographing an arrangement of glassware in the studio using color negative film. Your light-meter reading taken from the background indicates an exposure of 4 seconds at f/16. While at f/16, you should use which of the following camera settings to expose the film?
1. 16 seconds
 2. 12 seconds
 3. 8 seconds
 4. 4 seconds
- 5-45. You are photographing an object in the studio and are using a continuous-tone film (ISO 100) and a high-contrast film (ISO 8) to eliminate an unwanted background. Your exposure for the continuous-tone film is 24 seconds at f/16. What f/stop should you use to expose the slow, high-contrast film?
1. f/16
 2. f/11
 3. f/8
 4. f/5.6

Learning Objective: Recognize equipment and techniques used for photographing buildings and structures.

5-46. What type of camera is best suited for photographing architectural structures?

1. 35mm SLR
2. Medium-format TLR
3. Medium-format SLR
4. View camera

5-47. You are tasked to photograph a new Navy Lodge on board a local NAS. Which of the following weather conditions should you avoid when taking this photograph?

1. Bright day with clear skies
2. Slightly overcast day
3. Cloudy day
4. Bright day with large, puffy clouds

5-48. You are tasked to photograph the interior of a building that has a number of large windows. What time of day should you make the exposures?

1. Early Morning
2. Mid Morning
3. Noon
4. After dark

5-49. A lens shade should always be used over camera lenses.

1. True
2. False

Learning Objective: Identify basic principles used in intelligence-gathering photography.

5-50. What black-and-white film is best suited for taking intelligence-gathering pictures?

1. Kodak Tri-X
2. Kodak Tech Pan
3. Ilford XP-1
4. Kodak Plus-X

5-51. What color film is best suited for taking intelligence-gathering pictures?

1. Kodak Gold
2. Kodak Ektar
3. 3M HR
4. Kodak Vericolor Professional

5-52. Because the resolution of videotape is inferior to film, it should not be used for intelligence-gathering purposes.

1. True
2. False

5-53. What type of shot is most helpful to analysts in determining the overall dimensions of a ship?

1. Starboard beam
2. Stern
3. Port quarter
4. Bow

5-54. Which of the following light-meter reading techniques should you use to photograph an aircraft that is airborne?

1. Integrated
2. Brightest object
3. Incident
4. Substitution

5-55. Intelligence photographs of foreign ports are seldom taken from Navy ships because an ample supply of these images are provided by satellites.

1. True
2. False

ASSIGNMENT 6

Textbook Assignment: "Portraiture." Pages 7-1 through 7-20.

Learning Objective: Identify proper equipment and techniques used in photographing portraits.

- 6-1. A portrait should emphasize which of the following aspects about a person?
1. Their environment
 2. A recognizable likeness only
 3. Their personality
 4. Their flattering characteristics only
- 6-2. Which of the following factors can help you succeed in portrait photography?
1. An understanding of the techniques involved
 2. An artistic ability
 3. The ability to direct subjects
 4. All of the above
- 6-3. What is/are the most important feature(s) of the face?
1. Nose
 2. Eyes
 3. Mouth
 4. Ears
- 6-4. What is/are the most expressive feature(s) of a face?
1. Eyes
 2. Mouth
 3. Cheeks
 4. Forehead
- 6-5. You are using a camera that produces a 6x7 cm negative to shoot a head-and-shoulders portrait. Which of the following lenses should you use?
1. 50mm
 2. 75mm
 3. 150mm
 4. 250mm
- 6-6. What type of background is best suited for official Navy portraits?
1. Bright colored
 2. Light, neutral colored
 3. Dark colored
 4. Glossy surfaced
- 6-7. Your studio is set up with a brightly colored background and you are shooting color film for a portrait session. What is/are the disadvantage(s) of using this colored background?
1. It can distract from the subject
 2. Reflected light may affect the tone of the subject's face
 3. It may alter the mood you want to represent
 4. Each of the above
- 6-8. As a minimum, what two colors of backgrounds available should a Navy portrait studio have?
1. White and gray
 2. Black and gray
 3. Black and white
 4. Gray and black

Learning Objective: Select various lighting sources and accessories used in portrait photography.

- 6-9. What light source is best for portrait photography?
1. Sunlight
 2. Daylight
 3. Incandescent light
 4. Electronic flash
- 6-10. You want to produce deep, well-defined shadows on the face of a portrait. What type of light source should you use?
1. Reflected light
 2. Spotlight
 3. Floodlight
 4. Diffused light
- 6-11. The technique that allows only the softer, outer part of a light beam to fall on the subject is known by what term?
1. Diffusing
 2. Snooting
 3. Feathering
 4. Spotting
- 6-12. Which of the following lighting accessories is used to soften specular light?
1. Fresnel lens
 2. Barn door
 3. Snoot
 4. Diffusers
- 6-13. What lighting accessory is used to feather light?
1. Snoot
 2. Barn door
 3. Diffuser
 4. Umbrella
- 6-14. What lighting accessory is used to control spill light?
1. Barn door
 2. Diffuser
 3. Umbrella
 4. Reflector
- 6-15. What lighting accessory is used to control the size of the light beam falling on the subject?
1. Barn door
 2. Snoot
 3. Diffuser
 4. Umbrella
- 6-16. What lighting accessory is used to spread light over a larger area than that provided from the original source?
1. Barn door
 2. Snoot
 3. Diffuser
 4. Umbrella
-
- Learning Objective: Identify camera- and subject-handling techniques used in portrait photography.
-
- 6-17. What type of black-and-white film should you use to emphasize the texture of a man's skin in a portrait?
1. Panchromatic
 2. Colorblind
 3. Orthochromatic
 4. Infrared
- 6-18. Which of the following f/stops is generally better suited for taking portraits?
1. f/8
 2. f/16
 3. f/32
 4. f/64
- 6-19. Portrait appointments should be scheduled no closer than how many minutes apart?
1. 5
 2. 10
 3. 15
 4. 20

- 6-20. People should generally have their portraits taken during what part of the day?
1. Morning
 2. Afternoon
 3. Evening
 4. Night
- 6-21. Which of the following methods helps to provide a natural expression of the subject?
1. Tell them to "just act natural"
 2. Show them an example of how you want them to look
 3. Carry on a conversation with the subject to help them feel at ease
 4. Tell a joke at the time of exposure
- 6-22. When directing the subject for a portrait pose, you, as the photographer, should be in what location?
1. Behind the camera
 2. At the subject's side
 3. Behind the subject
 4. In front of the camera within the circle of light
- 6-23. What is the best average height of a camera for a head-and-shoulders portrait?
1. Chest level
 2. Slightly above the subject's eyes
 3. Slightly below the subject's chin
 4. Nose level
- 6-24. When shooting a full-length portrait, you should begin with your camera at what level to the subject?
1. Waist
 2. Chest
 3. Shoulder
 4. Head
- 6-25. You are shooting a portrait and want the subject to appear to be looking, but not staring at the viewer in the finished print. To create this effect, you should have the subject look in what direction during the camera exposure?
1. Into the camera lens
 2. Slightly above the camera lens
 3. Below the camera lens
 4. At the modeling light
- 6-26. To create the feeling of motion in a head-and-shoulders portrait, you should have the subject sit in what position in relation to the camera?
1. At an angle and leaning slightly forward
 2. At an angle and leaning slightly backward
 3. Square and leaning slightly forward
 4. Square and leaning slightly backward
- 6-27. What is the point of interest in a military portrait?
1. The national ensign
 2. The subject's rank or rating insignia
 3. The subject's awards
 4. The subject's face
-
- Learning Objective: Recognize different types of portrait lighting and their corresponding effects.
-

PORTRAIT LIGHTING

- A. Rembrandt
- B. Short
- C. Broad
- D. Rim

Figure 6A

IN ANSWERING QUESTIONS 6-28 THROUGH 6-31, REFER TO FIGURE 6A AND SELECT THE TYPE OF PORTRAIT LIGHTING USED TO CREATE THE EFFECT USED AS THE QUESTION.

6-28. The side of the face away from the camera is fully lighted:

- 1. A
- 2. B
- 3. C
- 4. D

6-29. The side of the face away from the camera is lighted by a high main light:

- 1. A
- 2. B
- 3. C
- 4. D

6-30. The entire face is in shadow:

- 1. A
- 2. B
- 3. C
- 4. D

6-31. The side of the face toward the camera is well-lighted:

- 1. A
- 2. B
- 3. C
- 4. D

6-32. What type of lighting produces a shadow directly under the nose?

- 1. Broad
- 2. Butterfly
- 3. Short
- 4. Rembrandt

6-33. What type of lighting is used to illuminate one side of the face while placing the opposite side completely in shadow?

- 1. Rim
- 2. Short
- 3. Split
- 4. Broad

Learning Objective: Identify methods used to determine the placement of portrait lights.

6-34. What light source in a portrait-lighting situation is the most influential?

- 1. Fill
- 2. Hair
- 3. Background
- 4. Modeling

6-35. In military portraits, what type of lighting is used for subjects with a normal shape face?

- 1. Short
- 2. Broad
- 3. Butterfly
- 4. Spit

6-36. What type of lighting should you use for a subject with a narrow face?

- 1. Short
- 2. Broad
- 3. Spit
- 4. Rembrandt

6-37. Which of the following lighting effects causes too much light to be reflected from the subject's forehead in a portrait?

- 1. The fill light is too bright
- 2. The main light is too far from the fill light
- 3. The main light is too close to the subject
- 4. The intensity of the fill light is greater than the main light

- 6-38. What light creates the facial highlights in portrait lighting?
1. Background
 2. Hair
 3. Fill
 4. Main
- 6-39. What factors are used to determine the required direction of the main light in three-quarter portrait lighting?
1. The distance of the main light from the fill light
 2. The size and shape of the subject's nose
 3. The size and intensity of the main light as compared to the fill light
 4. The relationship of the nose shadow to the upper lip
- 6-40. What facial highlight is used to determine the distance of the main light?
1. Nose
 2. Forehead
 3. Chin
 4. Cheek
- 6-41. When naval officers have their portrait made with their cover on, the shadow cast by the visor must not fall across their eyes.
1. True
 2. False
- 6-42. What is the purpose of the fill light in portrait lighting?
1. To provide shadow detail
 2. To increase the level of illumination necessary to obtain greater depth of field
 3. To provide modeling and highlight contrast
 4. To increase the lighting ratio
- 6-43. In three-quarter portrait lighting, the fill light should be in what location?
1. Directly behind the main light
 2. On the same side of the camera as the main light
 3. On the opposite side of the camera from the main light
 4. Behind the subject
- 6-44. The shadow cast under the subject's chin by the fill light helps to separate the head from the neck in portrait lighting, and therefore should be quite dark.
1. True
 2. False
- 6-45. In a portrait subject's eye, what is the small reflection caused by the main light called?
1. Highlight
 2. Star light
 3. Bright light
 4. Catch light
- 6-46. What number of catch lights should be in each eye?
1. One
 2. Two
 3. Three
 4. Four
- 6-47. In broad lighting, the catch light should be in what approximate position?
1. One o'clock
 2. Six o'clock
 3. Three o'clock
 4. Eleven o'clock
- 6-48. In short lighting, the catch light should be in what approximate position?
1. One o'clock
 2. Six o'clock
 3. Three o'clock
 4. Eleven o'clock

- 6-49. What is the maximum lighting ratio for color portraits?
1. 1:1
 2. 2:1
 3. 3:1
 4. 5:1
- 6-50. In portrait lighting, what light is used to provide tonal separation between the subject and the background?
1. Main
 2. Catch
 3. Fill
 4. Background
- 6-51. You are shooting a color portrait for a command roster board. To reproduce the background in its true color, you should ensure what amount of incident light is falling on it?
1. The same as the subject
 2. Twice as much as the subject
 3. One half as much as the subject
 4. Four times as much as the subject
- 6-52. You position the background light so the illumination falls off gradually into the corners of the frame. This produces what effect?
1. It hides uneven borders
 2. It provides image balance
 3. It "locks" the image into the frame
 4. It helps direct attention to the subject's face
- 6-53. Light-meter readings for portraits should be taken with the hair light turned off.
1. True
 2. False
- 6-54. When setting up a portrait using side lighting, you should start with the main light in what position?
1. Very close to the lens axis
 2. 45 degrees from the lens axis
 3. 90 degrees from the lens axis
 4. 180 degrees from the lens axis
- 6-55. What type of portrait lighting should you use to subdue lines and wrinkles in the subject's face?
1. Spit
 2. Broad
 3. Butterfly
 4. Rembrandt
- 6-56. What facial shadow should you use to determine the height of the main light for butterfly lighting?
1. Eyebrow
 2. Nose
 3. Lip
 4. Chin
- 6-57. You are taking a portrait of a female admiral using butterfly lighting. In what position should you place the fill-in light?
1. Close to the lens axis and on the opposite side from the main light
 2. 45 degrees from the lens axis and on the same side as the main light
 3. 45 degrees from the lens axis and on the opposite side of the main light
 4. Directly below the main light and close to the lens axis
-
- Learning Objective: Identify the basic setup used for taking full-length portraits.
-

- 6-58. What background color is best suited for a full-length portrait of an officer wearing khakis?
1. Gray
 2. Light blue
 3. Beige
 4. White
- 6-59. You are taking a full-length officer promotion portrait of a CDR. You should pose the subject in what manner?
1. Square to the camera
 2. Facing your left
 3. Three quarters with the left shoulder forward
 4. One that makes him appear thin
- 6-60. Because all military portraits are standardized, they should be taken with the same pose, camera height, and lighting setup.
1. True
 2. False

Learning Objective: Identify corrective techniques used in portrait photography.

PORTRAIT PROBLEM AREAS	
A.	Protruding lips
B.	Glasses
C.	Baldness
D.	Fat, round face
E.	Deep-set eyes
F.	Wide forehead

Figure 6B

IN ANSWERING QUESTIONS 6-61 THROUGH 6-66, REFER TO FIGURE 6B AND SELECT THE PORTRAIT PROBLEM AREA THAT BEST MATCHES THE CORRECTIVE ACTION USED AS THE QUESTION.

- 6-61. Low-camera viewpoint and front-lighting:
1. B
 2. C
 3. D
 4. E
- 6-62. Shoot three-quarter view. Short or sidelighting:
1. A
 2. C
 3. D
 4. F
- 6-63. Low main light:
1. A
 2. B
 3. D
 4. F
- 6-64. Low-camera viewpoint. Light to blend head with background:
1. B
 2. C
 3. D
 4. F
- 6-65. High, three-quarter or front-lighting. Tilt head downward:
1. A
 2. B
 3. C
 4. E
- 6-66. Low-camera viewpoint. Tilt chin upward:
1. A
 2. B
 3. D
 4. F
- 6-67. Film exposure for portraits should be based on the intensity of
1. the fill light only
 2. the main light only
 3. the fill and main lights only
 4. all lights used

Learning Objective: Recognize principles used for taking passport photographs.

- 6-68. All active-duty military personnel are entitled to no cost tourist passport photographs taken in Navy imaging facilities.
1. True
 2. False
- 6-69. The head size for passport photographs must be what size, in inches?
1. 1 to 1 3/8
 2. 1/2 to 1
 3. 3/4 to 1 1/4
 4. 1 3/8 to 2
- 6-70. A Navy lieutenant enters your imaging facility for a passport photograph wearing prescription aviator sunglasses. He normally wears glasses but does not have glaucoma. Which of the following actions should you take?
1. Ask him to put on his regular glasses and then take the photograph
 2. Have him remove the sunglasses and take the photograph
 3. Say nothing and take the photograph with the sunglasses on

ASSIGNMENT 7

Textbook Assignment: "Copying" and "Chemical Mixing." Pages 8-1 through 9-12.

Learning Objective: Recognize different types of copy originals.

COPY TERMS

- A. Line Originals
- B. Reproduction
- C. Halftone
- D. Continuous-Tone Original
- E. Duplication

Figure 7A

IN ANSWERING QUESTIONS 7-1 THROUGH 7-4, SELECT THE COPY TERM THAT BEST APPLIES TO THE DEFINITION USED AS THE QUESTION.

7-1. A photograph comprised of many different gray, white, and black tones:

- 1. A
- 2. B
- 3. D
- 4. E

7-2. The product of copying:

- 1. A
- 2. B
- 3. C
- 4. D

7-3. A black-and-white printed page:

- 1. A
- 2. B
- 3. C
- 4. D

7-4. A picture made of various size dots:

- 1. A
- 2. B
- 3. C
- 4. D

Learning Objective: Identify conditions of copyrighted materials.

7-5. Copyright laws apply only to works published and made available for sale.

- 1. True
- 2. False

7-6. To play it safe as a Navy Photographer's Mate, you should abide by which of the following rules regarding copyright information?

- 1. Never copy information that is copyrighted
- 2. You may copy any copyrighted material if it will be used one time only and the copy is marked "For Official Use Only"
- 3. Be sure permission from the copyright holder is obtained before copying copyrighted materials
- 4. If it is used for training purposes, it may be copied

7-7. Which of the following items may be copyrighted?

- 1. Compact disks
- 2. Videotapes
- 3. Photographs
- 4. Each of the above

- 7-8. At what point in time does a photograph legally become copyrighted?
1. When it is processed
 2. When it is submitted to the Copyright Office
 3. When it is published
 4. When it is sold
- 7-9. Which of the following statements regarding copyright is true?
1. A notice of copyright is marked conspicuously on all copyrighted documents
 2. Although a publication does not carry a notice of copyright, it may still be copyrighted
 3. Without permission from the copyright owner, you may still copy publications from foreign countries
 4. All of the above
- 7-10. A literary work was created by two authors in 1980. Neither of the authors worked for hire. The first author died in 1981, and the second author died in 1885. What year does the copyright expire for this work?
1. 2031
 2. 2035
 3. 2056
 4. 2085
- 7-11. What, if anything, is meant by "international copyright?"
1. The material is copyrighted throughout the world
 2. The copyright applies to UCC countries only
 3. All UCC countries have agreed to copyright the material
 4. There is no such thing as "international copyright"
- 7-12. A Navy pilot takes some air-to-air photographs of an aircraft just introduced to the fleet. As assistant PAO, this is a part of his duty. These photographs are copyright protected for what length of time, if any?
1. 50 years after his death
 2. 75 years after his death
 3. 100 years from the date the photographs were processed
 4. None
- 7-13. Which of the following statements concerning copyright information and the principle of "fair use" is NOT true?
1. For educational purposes, a teacher can make a single copy of a document for each student and use the copies from year to year
 2. A single copy of an article from a magazine may be used for research purposes
 3. There is no limit to the number of copies that can be made of a table of weights and measures
 4. A teacher may make a single copy of a chapter in a book if the material is used in preparation for teaching a class
- 7-14. What instruction provides information on the use of copyrighted material for official Navy use?
1. OPNAVINST 5290.1
 2. SECNAVINST 5870.5
 3. SECNAVINST 5216.5
 4. COPYRITINST 10700.3

7-15. You are standing "duty PH" alone at a base imaging facility. The CO of the base personally brings in a copyrighted document that he needs copied to a 35mm slide at once. What action should you take?

1. Tell the CO you cannot copy the document because it is copyrighted
2. Mask the copyright notice, then copy the document
3. Ensure the CO knows that the document is copyrighted before you begin the job
4. Make an extra slide of the document and forward it to the CNO

7-16. It is illegal to photograph United States currency.

1. True
2. False

Learning Objective: Recognize equipment, film, and lighting techniques used for photographic copying.

7-17. For an imaging facility that performs a large quantity of copy work, what focusing system is best?

1. SLR
2. Rangefinder
3. Ground glass
4. Split level

7-18. What is the minimum desired bellows extension for a copy camera?

1. The lens focal length
2. Twice the lens focal length
3. Three times the lens focal length
4. Four times the lens focal length

7-19. What type of lens is designed specifically for copying?

1. Process
2. Convertible
3. High resolve
- Two dimensional

7-20. What primary factor determines the focal-length lens you should use for copy work?

1. The lens-to-original distance
2. The size of the original
3. The distance from the light source to the original
4. The size of the negative

7-21. For copy work, you should use which of the following lenses, in inches, on a camera that produces an 8x10-inch negative?

1. 8
2. 10
3. 12
4. 18

7-22. The copyboard of a copy camera should not be white or a light color for which of the following reasons?

1. The film will be overexposed
2. The film will be underexposed
3. The reproduced image will lack good contrast
4. The reproduced image will have excessive contrast

7-23. What is the color temperature rating of tungsten lamps?

1. 3200 K and 3400 K
2. 5400 K and 7200 K
3. 7400 K and 9600 K
4. 10,000 K and 21,000 K

7-24. What is the approximate lifetime, in hours, of a 3400 K lamp?

1. 5
2. 9
3. 3
4. 34

7-25. What type of light source is best suited for copying a painting with rough surface?

1. 3200 K tungsten lamp
2. Fluorescent lamp
3. Electronic flash
4. Quartz-halogen lamp

- 7-26. You are copying charts to 35mm color slides on an MP-4 copy camera. The right-rear lamp burns out. What lamp(s) should you replace?
1. The right-rear lamp only
 2. The right-rear and the right-front lamps only
 3. The right-rear and the left-rear lamps only
 4. All four lamps
- 7-27. What type of film should you use to copy a black-and-white line original?
1. Kodalith
 2. Plus-X
 3. HP5 Plus
 4. XP2
- 7-28. Which, if any, of the following types of film should you use to make a black-and-white copy of a colored line original?
1. Colorblind
 2. Orthochromatic
 3. Panchromatic
 4. None of the above
- 7-29. To copy a black-and-white continuous-tone original, you should use which of the following films??
1. Kodalith
 2. Contrast Process Pan
 3. Kodak Commercial
 4. Tri-X
- 7-30. Which of the following films should you use to produce a color negative of a color photographic print?
1. Vericolor III Professional
 2. Kodak Internegative
 3. Ektachrome
 4. Kodacolor
- 7-31. You are printing a number of color prints that will later be copied to color slides. What surface paper should you use to make the prints?
1. Glossy
 2. Matte
 3. Semimatte
 4. Pearl
- 7-32. At what angle to the original should the copy lights be positioned for general, routine copy work?
1. 90°
 2. 45°
 3. 30°
 4. 10°
- 7-33. You have produced a copy negative that you know was lighted evenly, but the negative still has less density at the edges than at the center. What factor most probably caused this problem?
1. A wide-angle lens was used
 2. A telephoto lens was used
 3. The film was overexposed
 4. The film was underexposed
- 7-34. What type of film requires the most critical exposure?
1. High contrast
 2. Moderate contrast
 3. Normal contrast
 4. Low contrast
- 7-35. Many bright reflections are occurring from high points of brush strokes on an oil painting that you are copying. What may be the end result?
1. Increased contrast
 2. Reduced contrast
 3. Underexposure
 4. Overexposure

- 7-36. Polarizing screens are being used over copy lights. Approximately how much of an increase in exposure is required as compared to using the lights unscreened?
1. 5 times
 2. 2 times
 3. 12 times
 4. 20 times
- 7-37. You are using an ISO 100 speed film to make copies. Your exposure meter reading is taken from an 18-percent gray card. What ISO speed should you set into the meter?
1. 25
 2. 50
 3. 100
 4. 200
- 7-38. You are producing copies using a 14-inch bellows extension. The lens focal length is 6 inches and the indicated exposure is 3 seconds. What exposure time, in seconds, should you use?
1. 6
 2. 12
 3. 16
 4. 32
- 7-39. When photographing images of a CRT, you must be aware of which of the following requirements?
1. The shutter speed is extremely critical when photographing radarscopes
 2. The screen brightness must be adjusted to maximum so the brightest possible images are provided
 3. To shoot a computer monitor, you must set the camera shutter speed to 1/250 second
 4. The optical axis of the lens must be centered and perpendicular to the monitor
- 7-40. For slide duplication, what side of the film should face the camera?
1. Emulsion
 2. Base
- 7-41. You have copied a number of slides and all of the processed images on the roll are extremely yellow. What action should you take first?
1. Subtract 50Y from the filter pack
 2. Add 50B to the filter pack
 3. Add 50M and 50C to the filter pack
 4. Check the duplicating system to ensure the CC filters were in the proper position when the slides were exposed
- 7-42. When trying to determine the color correction necessary for a duplicate color slide, you should examine what tones?
1. Midtones
 2. Shadows
 3. Highlights
- 7-43. By viewing a color slide through a CC10R filter, you determined that the color looks correct. Which of the following adjustments should you make to your filter pack?
1. Subtract CC10R only
 2. Subtract CC10M and CC10Y
 3. Add CC10C only
 4. Subtract CC10C only

Learning Objective: Identify methods used to duplicate slides.

Learning Objective: Identify proper mixing and storage procedures for photographic chemicals.

- 7-44. What is the most important reason for ensuring that photographic chemicals are mixed properly?
1. using improperly mixed chemicals is always hazardous to the user's health
 2. Improperly mixed chemicals may ruin the film from an important mission
 3. The mixing equipment may be damaged

- 7-45. The storage of unmixed chemicals should be at what approximate temperature and relative humidity, respectively?

1. 20°F; 68 percent
2. 40°F; 75 percent
3. 68°F; 20 percent
4. 75°F; 40 percent

- 7-46. Containers made from what material are best for storing liquid developer?

1. Hard rubber
2. Plastic
3. Glass
4. Stainless steel

- 7-47. Air space should never be left in a large bottle used for storing developer replenisher.

1. True
2. False

- 7-48. Floating lids are used for storage of large volumes of solution in tanks for what primary purpose?

1. To prevent dust from settling on the surface of the solution
2. To prevent water in the solution from evaporating
3. To prevent unauthorized use of the solution
4. To protect the solution from aerial oxidation

- 7-49. Which of the following materials is NOT suitable for a photographic chemical storage tank?

1. Aluminum
2. Glass
3. 316 Stainless Steel
4. Polyethylene

- 7-50. When washed well between uses, wooden paddles make excellent chemical mixing tools.

1. True
2. False

- 7-51. The curved surface at the top of a solution is known by what term?

1. Convexation
2. Concavation
3. Meniscus
4. Mantissa

- 7-52. An increase in temperature has what effect, if any, on chemical action?

1. It increases
2. It decreases
3. None

Learning Objective: Identify items of equipment used in Navy imaging facilities to test or verify chemical solutions.

- 7-53. What instrument is used to measure the specific gravity of a solution?

1. Densitometer
2. pH meter
3. Hydrometer
4. Thermometer

7-54. The specific gravity measurement of a solution is below the lower limit. This may be an indication of which of the following errors?

1. The solution is diluted with too much water
2. Not enough water was added
3. Too much of an ingredient has been added
4. The solution may be highly acidic

7-55. A hydrometer used to measure the silver content of a fixing bath is calibrated in grams of silver per

1. ounce
2. milliliter
3. gallon
4. liter

7-56. Specific gravity is a measurement of what property of a liquid?

1. Composition
2. Strength
3. Opacity
4. Density

7-57. What part of the meniscus, if any, at the stem of the hydrometer indicates the ratio of the density of a solution to the density of distilled water?

1. The top
2. The center
3. The bottom
4. None

7-58. Acidity and alkalinity of solutions are measured with what instrument?

1. Hydrometer
2. pH meter
3. Activity indicator
4. Sensitometer

7-59. Photographic developing solutions have which of the following pH values?

1. 3.1 to 5.0
2. 5.0 to 8.0
3. 8.0 to 12.0
4. 12.0 to 14.0

7-60. An alkali may have which of the following pH values?

1. 1.0
2. 5.0
3. 7.0
4. 9.0

7-61. A pH value of 7.0 is

1. acidic
2. alkaline
3. neutral

7-62. A pH value of 1.0 is how many times stronger than a pH value of 3.0?

1. One
2. Two
3. Ten
4. One hundred

7-63. The solution used to standardize a pH meter is known as what type of solution?

1. Acid
2. Alkali
3. Buffer
4. Neutral

7-64. You are standardizing a pH meter before taking the pH reading of a black-and-white fixer. You should use a buffer solution with what pH value to standardize the meter?

1. 14.0
2. 10.0
3. 7.0
4. 4.0

Learning Objective: Identify procedures used in mixing photographic chemicals.

- 7-65. You have set up an impeller type of mixer to mix a developer solution, but you have adjusted the clamp improperly so the shaft is vertical and in the center of the container. What is the most probable end result?
1. The motor bearings are damaged
 2. Too much air was whipped into the solution
 3. The mixer vibrated enough to mix the chemicals sufficiently
 4. The solution was churned from top to bottom, rather than from bottom to top
- 7-66. How many degrees Celsius equate to 68°F?
1. 10°C
 2. 20°C
 3. 30°C
 4. 40°C
- 7-67. You are mixing a developing solution and the directions call for water at 23.8°C. This is equal to how many degrees Fahrenheit?
1. 18.75°F
 2. 37.50°F
 3. 75.00°F
 4. 125.50°F
- 7-68. You are preparing a working solution of developer from a stock solution. The instructions call for 1 part of stock solution and 3 parts water. You need a total of 1 gallon of working solution. What amount of water, in ounces, should you add to the solution?
1. 32
 2. 64
 3. 96
 4. 128
- 7-69. For adequate ventilation in a chemical mixing area, there should be one complete air change every
1. 15 minutes
 2. 30 minutes
 3. 3 minutes
 4. 45 minutes
- 7-70. It is permissible to mix photographic chemicals in a photographic print room that has adequate ventilation.
1. True
 2. False
- 7-71. You need 32 ounces of developer solution. The only size package of dry, prepackaged chemicals you have on hand makes 128 ounces. Should you mix the entire package to make 128 ounces and, if so, why?
1. Yes; when only part of the package is mixed, some of the ingredients may be left out of the resulting solution
 2. Yes; when only part of the package is mixed, the resulting solution will not develop film
 3. No; dry, packaged chemicals are homogenized
 4. No; dry, packaged chemicals are formulated to be mixed either in part or in whole
- 7-72. You should follow what procedure when mixing chemicals?
1. Add water to dry chemicals and acid to water
 2. Add dry chemicals to water and acid to water
 3. Add water to dry chemicals and water to acid
 4. Add dry chemicals to water and water to acid
-
- Learning Objective: Recognize safety precautions required in chemical mixing areas.
-
- 7-73. Labels on chemical storage tanks must include the name of the solution, hazardous chemicals contained, the name of the person who mixed it, and what other information?
1. The water-mixing temperature
 2. The date mixed
 3. The antidote
 4. The name of the chemical-mixing supervisor

- 7-74. What rule(s) is/are important to remember whenever you are working around chemicals?
1. An antidote is for emergency use only
 2. Ingestion of a poisonous chemical may be induced by smoking
 3. A person who has spilled acid on himself should seek medical attention immediately
 4. All of the above
- 7-75. Which of the following personnel must be completely familiar with Material Safety Data Sheets (MSDS)?
1. The division officer only
 2. The division officer and LCPO only
 3. The division officer, LCPO, and production PO only
 4. All persons within an imaging facility

ASSIGNMENT 8

Textbook Assignment: "Image Processing and Control." Pages 10-1 through 10-30.

Learning Objective: Recognize functions of the various solutions used to process light-sensitive materials.

- 8-1. What process is most commonly used for film development?
1. Physical
 2. Chemical
 3. Intensification
 4. Latent conversion
- 8-2. When performed correctly, the chemical development process reduces exposed silver halides to what composition?
1. Black metallic silver
 2. Soluble-silver salt
 3. Dye-image salt
 4. Gray-tone dye
- 8-3. All silver halides, both exposed and unexposed, can be reduced to metallic silver in the development process.
1. True
 2. False
- 8-4. What term describes the amount of silver in a film emulsion that has been reduced to black metallic silver?
1. Light struck
 2. Rate phenomenon
 3. Density
 4. Primary silver
- 8-5. What is the most important ingredient in a developing solution?
1. Preservative
 2. Accelerator
 3. Restrainer
 4. Reducing agent
- 8-6. What is the purpose of the preservative in a developing solution?
1. It makes the image permanent
 2. It retards oxidation
 3. It prevents the formation of poisonous gas
 4. It prevents the reducing agent from attacking the unexposed silver halides
- 8-7. Which of the following chemicals may be used as a preservative?
1. Hydroquinone
 2. Metol
 3. Sodium hydroxide
 4. Sodium sulfite
- 8-8. What ingredient in a developing solution makes it alkaline?
1. Reducing agent
 2. Accelerator
 3. Preservative
 4. Restrainer
- 8-9. What two functions does the accelerator in a developing agent serve?
1. It constricts the emulsion and prevents aerial oxidation
 2. It constricts the emulsion and increases the rate of development
 3. It swells the emulsion and absorbs the halide elements freed from the silver
 4. It swells the emulsion and retards the rate of development
- 8-10. A developer with which of the following pH values will most likely produce an image with a finer grain?
1. 1.5
 2. 5.5
 3. 8.5
 4. 11.0

- 8-11. The restrainer in a developing solution serves what purpose?
1. It slows down the action of the reducing agent
 2. It prevents the preservative from etching the silver grains
 3. It reduces image contrast
 4. It prevents the solution from oxidizing
- 8-12. Which of the following developer ingredients is used to prevent chemical fog?
1. Metol
 2. Hydroquinone
 3. Sodium sulfite
 4. Potassium bromide
-
- Learning Objective: Identify different types of black-and-white developers and their uses.
-
- 8-13. In the development stage of film processing, what areas of the negative are converted to black metallic silver first?
1. Highlights
 2. Mid-tones
 3. Shadows
- 8-14. Which of the following factors does NOT determine the type of developer you choose to process film?
1. Film size
 2. Type of process
 3. Exposure conditions
 4. Type of film
- 8-15. When black-and-white film is processed in a fine-grain developer, the grain structure cannot be seen even in prints made at high magnifications.
1. True
 2. False
- 8-16. What type of developer should you use to process a line copy film?
1. High definition
 2. Fine grain
 3. High contrast
 4. General purpose
- 8-17. Which of the following statements is NOT a property of a compensating developer?
1. It increases image sharpness
 2. It may produce acceptable negatives that are one or two f/stops underexposed
 3. It is recommended for use with fine-grain emulsions only
 4. It produces extremely fine grain
- 8-18. What effect, if any, does the by-products caused by the reduction of silver halides have on the pH of a developing solution?
1. It increases
 2. It decreases
 3. None
- 8-19. Which of the following actions should you take to compensate for the additional bromide present in a used developer?
1. Increase the developing time
 2. Decrease the developing time
 3. Add more restrainer
 4. Lower the temperature of the developer
- 8-20. Which of the following ingredients is NOT included in a developer replenisher?
1. Reducing agent
 2. Preservative
 3. Restrainer
 4. Water

- 8-21. What is the primary reason for using a developer replenisher?
1. To allow use of the same developing solution indefinitely
 2. To maintain the composition of a developer
 3. To extract the used developer
 4. To keep the developer activity constant

- 8-22. What replenishment method is used to maintain solution volume only?
1. Bleed
 2. Topping off
 3. Titration

- 8-23. The processing characteristics of a developer remains more consistent when what replenishment method is used?
1. Bleed
 2. Topping off
 3. Titration

Learning Objective: Identify procedures carried out after film is developed.

- 8-24. A water-rinse bath stops the action of the developer.
1. True
 2. False

- 8-25. What property of a stop bath prevents further development?
1. Temperature
 2. Volume
 3. Penetrating action
 4. pH

- 8-26. A solution with which of the following pH readings should be used as a stop bath?
1. 2.0
 2. 5.0
 3. 7.0
 4. 9.0

- 8-27. A stop bath should be made up of a weak acid for which of the following reasons?

1. To prevent damage to the film emulsion
2. To prevent the fixing bath from sulphurizing
3. Both 1 and 2 above
4. To prevent darkroom workers from inhaling strong acid fumes

- 8-28. What type of acid is commonly used as a stop bath and in what strength (percentage)?

1. Sulfuric; 28.0%
2. Acetic; 99.5%
3. Sulfuric; 99.5%
4. Acetic; 28.0%

- 8-29. Glacial acetic acid freezes at what temperature, in degrees Fahrenheit?

1. 61°F
2. 32°F
3. 10°F
4. 0°F

- 8-30. For a normal stop bath, you should mix a total of how many ounces of 28 percent acetic acid with 32 ounces of water?

1. 1
2. 1/2
3. 16
4. 28

- 8-31. Once film is treated in a stop bath, it is no longer sensitive to light?

1. True
2. False

- 8-32. What step in film processing makes the silver salts that are not affected by the developer water soluble?

1. Water rinse
2. Stop bath
3. Fixer
4. Wash

- 8-33. Which of the following chemicals is used commonly as a silver-halide solvent?
1. Acetic acid
 2. Sodium thiosulfate
 3. Sodium sulfite
 4. Borax
- 8-34. Which of the following chemicals is added to fixing solutions to prevent sulfurization and discoloration as well as aiding in prevention of stains?
1. Sodium thiosulfate
 2. Ammonium thiosulfate
 3. Sodium sulfite
 4. Potassium alum
- 8-35. Which of the following films requires the longest fixing time?
1. Very fine grain
 2. Fine grain
 3. Medium grain
 4. Coarse grain
- 8-36. You used an undeveloped piece of film to determine the proper fixing time. The film took 2 minutes to clear. After development, what length of time, in minutes, should you fix the same type of film?
1. 1
 2. 2
 3. 8
 4. 4
- 8-37. A fresh fixer used to process black-and-white film takes 4 minutes to clear a piece of undeveloped film. The fixer should be considered exhausted when it takes a total of how many minutes to clear undeveloped film?
1. 5
 2. 6
 3. 7
 4. 8
- 8-38. The purpose of washing film is to remove which of the following elements?
1. Black metallic silver
 2. Fixer
 3. Developer
 4. Silver halides
- 8-39. For black-and-white film, the maximum recommended wash water is what temperature, in degrees Fahrenheit?
1. 65°F
 2. 70°F
 3. 75°F
 4. 80°F
- 8-40. The time required to wash negatives in a large tank is 20 minutes. However, halfway through the wash cycle a PH Striker from the deck department puts his fixer-covered hand into the wash tank. You should wash the negatives what additional amount of time?
1. 5 minutes
 2. 10 minutes
 3. 20 minutes
 4. 30 minutes
- 8-41. The final stage in film processing is what step?
1. Drying
 2. Washing
 3. Fixing
 4. Captioning
- 8-42. Which of the following statements is correct regarding the wetting agent used in film processing?
1. It promotes even drying
 2. It helps wash the film because it is made of a soaplike substance
 3. It retards vigorous drying that causes film curl
 4. It shrinks the swollen gelatin

8-43. You place a long roll of 35mm film in a film dryer to dry. What action should you take to prevent the film from curling?

1. Attach a film clip to the bottom of the roll
2. Cut the film into six-frame segments
3. Dry the film on the film reel
4. Hang the film in a U-shape loop

8-44. What is the best "cure" for film-drying problems?

1. Rewashing
2. Retouching
3. Prevention
4. Using a wetting agent

8-45. Film that is overdried can be identified by what characteristic?

1. The film curls toward the emulsion
2. The film curls toward the base
3. The base of the film turns pink
4. The images on the film appear faded

8-46. Film dryers use air impingement for what reason?

1. To help harden the gelatin
2. To cause the metallic silver to "set"
3. To prevent film curl
4. To promote faster drying

Learning Objective: Recognize equipment used in film processing.

8-47. Duckboards used in photographic processing sinks serve what purpose?

1. They rock trays and tanks to provide even agitation
2. They allow water to drain completely
3. They allow tanks or trays to float in the water bath
4. They allow water to circulate under and around tanks and trays to maintain chemical temperatures

8-48. What factor has the greatest bearing on selecting a safelight filter to use with a given photographic material?

1. The wattage of the light bulb
2. The working distance from the safelight to the light-sensitive material
3. The color sensitivity of the light-sensitive material
4. The length of time the light-sensitive material must be exposed to the safelight illumination

8-49. It takes 6 minutes to process a given light-sensitive material. To carry out the entire process of this material under the illumination of a safelight, you must ensure the safelight does NOT cause any evidence of fogging for what minimum length of time, in minutes?

1. 6
2. 8
3. 12
4. 24

8-50. What type of roll film reel is used most commonly in Navy imaging facilities?

1. Thumb-feed plastic
2. Center-feed plastic
3. Thumb-feed stainless steel
4. Center-feed stainless steel

8-51. A total of how many sheets of film can be washed properly at one time in a tray?

1. One
2. Two
3. Three
4. Four

8-52. What is the most effective method of washing film or paper in a tray?

1. Allow the water to fall directly on the film
2. Dump or change the water in the tray every 5 minutes
3. Rock the tray constantly
4. Use a siphon system

- 8-53. On board ships, a backflow preventer must be installed in the plumbing system when potable water is used to wash negatives and prints with a siphon system.
1. True
 2. False

Learning Objective: Recognize procedures used in processing photographic film.

LIGHTING CONDITION	
1.	Dark
2.	White light

Figure 8A

IN ANSWERING QUESTIONS 8-54 THROUGH 8-58, REFER TO FIGURE 8A. SELECT THE LIGHTING CONDITION USED TO CARRY OUT THE PROCESSING STEP USED AS THE QUESTION.

8-54. Fixing:

1. 1
2. 2

8-55. Drying:

1. 1
2. 2

8-56. Washing:

1. 1
2. 2

8-57. Developing:

1. 1
2. 2

8-58. Stop bath:

1. 1
2. 2

8-59. Which of the following factors affect film development?

1. Time
2. Temperature
3. Agitation
4. Each of the above

8-60. Which of the following publications provides complete processing information for all light-sensitive materials used in your imaging facility?

1. *Navy Visual Information Management and Operations Manual*
2. *Manual of Photography*
3. *Photo-Lab-Index*
4. *Kodak Guide to Film Processing*

8-61. For hand processing black-and-white film, you should agitate the film in what manner when (a) tray processing and (b) tank processing.

1. (a) constantly
(b) constantly
2. (a) constantly
(b) intermittently
3. (a) intermittently
(b) intermittently
4. (a) intermittently
(b) constantly

8-62. You are hand processing four rolls of 35mm film in a small tank designed to hold five 35mm reels. What action should you take before processing the film?

1. Place an empty 35mm reel in the bottom of the tank before placing the loaded reels
2. Place an empty 35mm reel on top of the loaded reels in the processing tank
3. Place an empty 35mm reel in the center of the processing tank in between the second and the third loaded reels
4. Process the film leaving empty space in the processing tank

8-63. When processing roll film in the tank-and-reel system, you should dislodge air bubbles from roll film in what manner?

1. Roll the tank along the bottom of the sink
2. Invert the tank several times
3. Shake the tank
4. Bang the tank on the edge of a hard surface

8-64. Which of the following processes is used to process color and some monochrome negative film in Navy imaging facilities?

1. Kodak E-6
2. Kodak Flexicolor
3. Kodak EP-2
4. Kodak RA-4

8-65. You are processing color negatives. During what processing step is temperature the most critical?

1. Color developer
2. Bleach
3. Fixer
4. Stabilizer

8-66. The Kodak E-6 process has what number of chemical steps?

1. Eight
2. Seven
3. Six
4. Four

8-67. You are processing color reversal film in the E-6 process. During what step is your first opportunity to subject the film to white light without fogging the film?

1. Final rinse
2. Fixer
3. Bleach
4. Reversal bath

8-68. You are hand processing a roll of Ektachrome film. The entire roll of film was underexposed by one f/stop. What alteration to the process should you make to compensate for the underexposure?

1. Increase the time in the first developer only
2. Increase the time in the first developer and the color developer only
3. Increase the time in the bleach by 2 minutes only
4. Increase the time of all processing steps by 20 percent

Learning Objective: Identify advantages and disadvantages of machine processing.

8-69. Which of the following advantages apply to photographic machine processors?

1. They can process a high volume of production efficiently
2. They provide more consistent results than hand processing
3. Both 1 and 2 above
4. They require very little maintenance

8-70. Which of the following factors is an advantage of the Image Maker processor?

1. It requires no maintenance
2. Operator error is impossible
3. It is capable of processing a number of different films and papers
4. The chemicals can be easily replenished and used indefinitely

8-71. What factor(s) determine(s) the processing time required on a roller--transport processor?

1. The depth of the processing tanks
2. The distance the film must travel
3. The machine speed
4. All of the above

- 8-72. You should consult which of the following publications for specifications on installing an automatic film processor?
1. The U.S. Navy Standard Installation Manual
 2. The Kodak Processing Standards Manual
 3. The manufacturer's installation and service manual
 4. The Photo-Lab-Index
- 8-73. What unit of measure is used to express film processing time in an automatic roller-transport processing machine?
1. Feet per minute
 2. Time in/out
 3. Rate of travel
 4. Roller rack rotation
- 8-74. The roller assembly in the fixing tank of a roller-transport processor holds 18 feet of film. The machine is operated at 7.5 feet per minute. What is the fixing time, in minutes?
1. 1.8
 2. 2.4
 3. 3.2
 4. 4.1
- 8-75. The film exiting the dryer of an automatic processor is curled excessively. What action should you take?
1. Increase the transport speed
 2. Decrease the transport speed
 3. Increase the dryer temperature
 4. Decrease the dryer temperature

ASSIGNMENT 9

Textbook Assignment: "Image Processing and Control," "Black--and-White Printing," and "Color Printing." Pages 10-31 through 12-17.

Learning Objective: Identify characteristics of high-quality negatives.

9-1. A black-and--white negative should make a good print when printed with what contrast printing filter?

1. No. 1
2. No. 2
3. No. 0
4. No. 4

9-2. What areas have the most density on a negative?

1. Highlights
2. Shadows
3. Midtones

9-3. The difference between the highlight and shadow densities describes what characteristic of a negative?

1. Opacity
2. Tonal gradation
3. Density
4. Contrast

9-4. Which of the following combined factors will produce a thin negative?

1. Underexposure and underdevelopment
2. Underexposure and overdevelopment
3. Overexposure and underdevelopment
4. Overexposure and overdevelopment

9-5. Which of the following areas in a photographed scene will produce the most density on a negative?

1. A shadow
2. A red car
3. A black sailor in winter blues
4. A white road sign

9-6. A processed black-and-white negative has good shadow detail but lacks good contrast and highlight densities. What is the most probable cause of these negative characteristics?

1. Normal exposure and overdevelopment
2. Normal exposure and underdevelopment
3. Underexposure and underdevelopment
4. Underexposure and normal development

9-7. Which of the following factors contribute to the graininess of a negative?

1. The type of emulsion
2. Development
3. Exposure
4. Each of the above

Learning Objective: Recognize equipment and the method used to monitor photographic processes.

9-8. What instrument provides consistent, repeatable exposures and is used to produce test strips?

1. Densitometer
2. Sensitometer
3. Photo sensitizer
4. Grier film exposor

- 9-9. A step tablet provides a range of what number of f/stops?
1. 21
 2. 11
 3. 10
 4. 7
- 9-10. On a 21-step tablet, the difference in density between each step is what number of f/stops?
1. One
 2. Two
 3. One half
 4. One third
- 9-11. What instrument is used to read densities from photographic papers and film?
1. Sensitometer
 2. Densitometer
 3. Emulsion meter
 4. pH meter
- 9-12. You are reading the densities of a Kodacolor test strip. The filter setting should be set to what status?
1. M
 2. K
 3. C
 4. A
- 9-13. When reading a control strip on a densitometer, you should take the readings from (a) what area of the step with (b) the emulsion facing in what direction?
1. (a) Center (b) down
 2. (a) Center (b) up
 4. (a) Edge (b) down
 4. (a) Edge (b) up
- 9-14. On a process control chart, what does the symbol \bar{X} represent?
1. The center line
 2. The mean
 3. The average
 4. Each of the above
- 9-15. You plotted a Kodacolor control strip at the beginning of the production day. The HD reading plotted 0.10 units above the UCL. What action should you take?
1. Process the film normally
 2. Speed up the processor by 10 percent
 3. Add 1000 ml of developer replenisher
 4. Notify your supervisor
-
- Learning Objective: Recognize factors affecting the production and quality of contact black-and-white prints.
-
- 9-16. The most familiar type of photographic print has what type of base?
1. Paper
 2. Film
 3. Resin
 4. Ester
- 9-17. What are the two primary methods of making photographic prints?
1. Positive and negative reproduction
 2. Contact and projection printing
 3. Precision and fallacious reduction
 4. Enlargement and reduction printing
- 9-18. What printing method(s) can be used to produce print images that are the same size as the negative images?
1. Contact
 2. Projection
 3. Both 1 and 2 above
 4. Precision
- 9-19. Variable-contrast photographic papers are not sensitive to which of the following colors of light?
1. Blue
 2. Green
 3. Red
 4. Cyan

9-20. When hand processing black-and-white prints, you should use what minimum number of trays?

1. One
2. Two
3. Three
4. Four

9-21. What number of trays is recommended for hand processing black-and-white prints?

1. Five
2. Seven
3. Three
4. Four

9-22. Contact printing produces what negative to print ratio?

1. 1:1
2. 2:1
3. 1:2
4. 2:2

9-23. What grade of glass should be used when making color contact prints?

1. White
2. Neutral
3. Crystal
4. Clear A1

9-24. When using a proof printer, you should place the emulsion side of (a) paper and (b) film in what direction?

1. (a) Down (b) down
2. (a) Down (b) up
3. (a) Up (b) up
4. (a) Up (b) down

9-25. What is the main purpose of a masking device in a contact printer?

1. It protects the glass from scratches
2. It allows the prints to be produced with white borders
3. It holds the paper in place
4. It separates the negative from the glass

9-26. When viewed under a light source, the emulsion side of (a) film and (b) paper have what appearance?

1. (a) Shiny (b) shiny
2. (a) Shiny (b) dull
3. (a) Dull (b) dull
4. (a) Dull (b) shiny

9-27. What affect occurs when the material used to mask a contact print is too thick?

1. The print requires an excessive amount of exposure
2. The print image is reversed
3. The image is blurred along the edges
4. The paper does not get exposed

9-28. What term describes the guide on a contact printer that aides quick and proper paper alignment?

1. Mask
2. Goldenrod
3. Paper stop
4. Print border mark

Learning Objective: Identify steps used to process black-and-white paper and control the contrast of black-and-white prints.

9-29. When hand processing black-and-white prints, the image on the paper should appear in what length of time, in seconds?

1. 30
2. 15
3. 10
4. 5

9-30. You made a contact print with a number 3 contrast printing filter, but the print lacks adequate contrast. Which of the following filters should you use to make the reprint?

1. No. 1
2. No. 2
3. No. 1 1/2
4. No. 4

- 9-31. In hand processing, the term "pull" refers to what action?
1. Pulling the print through the entire process
 2. Removing the print from the developer prematurely
 3. Pouring chemical solutions
 4. Removing prints from the dryer
- 9-32. A negative with normal contrast was printed with a No. 4 printing filter. Which of the following statements best describes the appearance of the prints?
1. The number of tones, reproduced matches the original scene tones closely
 2. The print shows an abundance of middle tones with few shadow areas
 3. The print is very flat
 4. The print has high contrast
- 9-33. When developing prints in a tray, you should ensure they are agitated in what manner?
1. Frequently
 2. Intermittently
 3. Constantly
 4. Infrequently
- 9-34. Which of the following statements is most accurate regarding print quality?
1. Print quality depends upon correct exposure only
 2. Print quality depends upon correct development only
 3. Print quality depends upon correct exposure and development
 4. Print quality is governed by the working characteristics of the paper and developer
- 9-35. You are hand processing a single black-and-white print. The print should be treated in the stop bath for what number of seconds?
1. 20
 2. 15
 3. 10
 4. 5
- 9-36. What is the most probable result of a fixing bath that is diluted less than recommended?
1. The prints sink
 2. The prints float
 3. The prints blister
 4. The prints separate from the base
- 9-37. When hand processing photographic film and paper, it is common practice to work in what direction?
1. From right to left
 2. From left to right
 3. From top to bottom
 4. From bottom to top
- 9-38. You are hand processing 26 8x10-inch prints at one time in a tray. You should agitate the prints in what manner?
1. Move the bottom print to the top of the stack
 2. Move the top print to the bottom of the stack
 3. Turn all the prints at one time and fan them quickly
 4. Remove each print in succession from the developer, drain it for 5 seconds, then place the print at the bottom of the stack
- 9-39. You are processing several black-and-white prints at one time. You should treat the prints in the stop bath for what number of seconds?
1. 15
 2. 30
 3. 60
 4. 90

9-40. After you remove a series of black-and-white prints from the dryer, you notice several of the prints have white fingerprints on them. What is the most probable cause of these fingerprints?

1. Fingerprints on the negative
2. Hands with developer on them touched the paper emulsion before processing
3. Hands with fixer on them touched the paper emulsion before processing
4. Dryer temperature was set too high and pressure from fingers made an indentation in the softened emulsion

9-41. To economize on the quantity of developer, you should use only enough solution to barely cover the paper.

1. True
2. False

Learning Objective: Identify methods used in projection printing.

9-42. "Dodging" and "burning in" are terms that best describe what type of control?

1. Contrast
2. Process
3. Exposure
4. Sensitivity

9-43. What method of printing allows you to correct for distortion?

1. Contact
2. Projection

9-44. A 4x5-inch negative is enlarged so the entire negative image is reproduced on an 8x10-inch print. What is the image magnification of this print?

1. 1x
2. 2x
3. 3x
4. 4x

9-45. All other factors being equal, what type of enlarger produces the greatest print contrast?

1. Condenser
2. Diffusion
3. Condenser-diffusion

9-46. What type of enlarger should you use to obscure negative defects?

1. Condenser
2. Diffusion
3. Condenser-diffusion

9-47. What type of black-and-white enlarger is used most commonly for general printing in Navy imaging facilities?

1. Condenser
2. Diffusion
3. Condenser-diffusion

9-48. Any high-quality camera lens can be used on an enlarger to produce high-quality prints.

1. True
2. False

9-49. You are printing a 4x5-inch negative. Which of the following focal-length enlarger lenses should you use?

1. 50mm
2. 75mm
3. 105mm
4. 150mm

9-50. With a lens-to-paper distance of 24 inches and all other factors being equal, which of the following focal-length lenses provides the greatest image magnification?

1. 50mm
2. 75mm
3. 105mm
4. 150mm

9-51. When photographic enlargements are being made, the term "cropping" is used to describe what procedure?

1. Setting the timer
2. Setting the aperture
3. Composing the image
4. Processing the prints

9-52. You made a test print without a contrast printing filter using an exposure of 10 seconds at f/11. The test print looks flat and you are going to make another test print using a No. 4 Ilford Multigrade printing filter. Keeping the timer on 10 seconds, you should make the new test print at what f/stop?

1. f/16
2. f/11
3. f/8
4. f/5.6

9-53. Which of the following printing techniques should you use to subdue facial blemishes;?

1. Dodging
2. Burning in
3. Diffusing
4. Vignetting

9-54. A negative you are printing has objectional grain structure. Which of the following techniques should you use to minimize this affect to the greatest extent?

1. Use a diffusion enlarger and glossy paper
2. Use a diffusion enlarger with matte-surfaced paper
3. Use a condenser enlarger and glossy paper
4. Use a condenser enlarger with matte-surfaced paper

9-55. In which of the following circumstances might you be concerned with depth of field when making enlargements?

1. When using dodging techniques
2. When using variable contrast papers
3. When printing a 35mm negative of a tall building
4. When the negative image shows shallow depth of field

Learning Objective: Recognize basic principles used in color printing.

9-56. What is the resulting color when blue is removed from white light?

1. Yellow
2. Green
3. Red
4. Magenta

9-57. What are the colors of the additive primaries?

1. White, gray, and black
2. Cyan, magenta, and yellow
3. Red, green, and yellow
4. Red, green, and blue

9-58. What are the colors of the additive secondaries and the subtractive primaries?

1. Red, green, and blue
2. Cyan, magenta, and yellow
3. Red, green, and yellow
4. White, gray, and black

9-59. The middle emulsion layer of color paper is sensitive to what color(s)?

1. Yellow
2. Red
3. Green
4. Each of the above

COLOR	
1.	Green
2.	Blue
3.	Red
4.	Orange

Figure 9A

IN ANSWERING QUESTIONS 9-60 THROUGH 9-62, REFER TO FIGURE 9A AND SELECT THE COLOR THAT RESULTS BY MIXING THE COLORS USED AS THE QUESTION.

9-60. Magenta and yellow:

1. 1
2. 2
3. 3
4. 4

9-61. Cyan and yellow:

1. 1
2. 2
3. 3
4. 4

9-62. Magenta and cyan:

1. 1
2. 2
3. 3
4. 4

9-63. What filter is used to remove ultraviolet radiation emitted by the light source of a color enlarger?

1. CC red
2. CP yellow
3. IR7
4. CP2B

9-64. A color enlarger lamp is designed to operate on 115 volts but is only receiving 95 volts. The color change of the output of the lamp is equivalent to what No. CC filter?

1. 05
2. 10
3. 15
4. 20

9-65. During exposure, the color paper received an excessive amount of green light. The processed print has what color cast?

1. Green
2. Magenta
3. Cyan
4. Yellow

9-66. When you are evaluating a color test print, the viewing light source should produce (a) what Kelvin temperature at (b) what number of footcandles of illuminance, and (c) what should the CRI be?

1. (a) 3950 (b) 55 (c) 90
2. (a) 4000 (b) 195 (c) 130
3. (a) 5000 (b) 100 (c) 95
4. (a) 5400 (b) 130 (c) 100

9-67. You are using color printing viewing filters to determine the color balance of a test print. On what areas of the print should you base your judgment?

1. Highlights
2. Shadows
3. Borders
4. Middle tones

9-68. The gray area in a color print has a red cast to it. Therefore, the light used to expose the print was deficient in what color?

1. Yellow
2. Red
3. Cyan
4. Blue

- 9-69. A color test print has a yellow color cast. Using a subtractive type of printer, you should make what modification to the filter pack?
1. Subtract yellow only
 2. Add yellow only
 3. Add blue only
 4. Add magenta and cyan
- 9-70. Your calculated color printing filter pack is CC10Y + CC15M + CC05C. What should the actual filter pack be for the reprint?
1. CC15Y + CC25M only
 2. CC15Y + CC25M + CC10C
 3. CC05Y + CC15M only
 4. CC05Y + CC15M + CC05C
- 9-71. A color test print has a blue color cast. Using an additive type of printer, you should make which of the following adjustments?
1. Add blue
 2. Subtract blue
 3. Add yellow
 4. Either 2 or 3 above
- 9-72. What is the purpose of a standard negative?
1. It is used as a comparison of negative printing qualities
 2. It serves as a tool to compare the printing characteristics of different emulsions
 3. It can be used to program color analyzers and automated printers
 4. Each of the above
- 9-73. You took portraits of four sailors. Each sailor had distinctly different skin tones; however, after the negatives were printed, all the skin tones were depicted alike. What is the most probable cause of error?
1. A skin tone was used for negative evaluation
 2. The studio lights were the wrong Kelvin temperature
 3. The same portrait lights were used to photograph all four sailors
 4. The characteristics of the negative-positive system are such that all skin tones are reproduced alike
- 9-74. You are processing color prints using the RA-4 process. What is the approximate total processing time in minutes?
1. 2 3/4
 2. 4 1/2
 3. 8 1/4
 4. 12
- 9-75. Which of the following characteristics apply to a minilab system?
1. It requires maintenance
 2. It is capable of producing a high volume of prints
 3. It is operated under normal lighting conditions
 4. Each of the above

ASSIGNMENT 10

Textbook Assignment: "Motion Media," and "Job Control and Photographic Finishing." Pages 13-1 through 14-13.

Learning Objective: Identify basic principles of motion-picture photography.

- | | |
|--|---|
| <p>10-1. What is the normal frames-per-second rate for motion pictures?</p> <ol style="list-style-type: none">1. 122. 243. 484. 96 <p>10-2. What characteristic of human vision contributes to the illusion of motion in motion-picture photography?</p> <ol style="list-style-type: none">1. Persistence of vision2. Image perception3. Chromatic stimulation4. Visual frequency response <p>10-3. With normal persistence of vision, the "after image" lasts approximately what length of time?</p> <ol style="list-style-type: none">1. 1/22. 1/43. 1/104. 1/50 <p>10-4. Each picture area on a strip of motion-picture film is referred to by what term?</p> <ol style="list-style-type: none">1. Cut2. Shot3. Frame4. Clip <p>10-5. What is the standard projection speed for a motion-picture film?</p> <ol style="list-style-type: none">1. 8 fps2. 16 fps3. 24 fps4. 36 fps | <p>10-6. A motion-picture film shot at which of the following fps rates produces the illusion of slow motion?</p> <ol style="list-style-type: none">1. 6 fps2. 12 fps3. 24 fps4. 48 fps <p>10-7. What is the normal focal-length lens for a 16mm camera?</p> <ol style="list-style-type: none">1. 50mm2. 35mm3. 25mm4. 16mm <p>10-8. What is the result when a motion-picture camera is panned with a polarizing filter over the lens?</p> <ol style="list-style-type: none">1. Variable darkening of the sky as the camera is panned2. The polarizing grids cause the image to flicker3. Excessive sky contrast results from the inability of the filter to rotate at the same rate as the camera is panned4. Interference lines caused by the polarizing grids and the frame lines being out of synchronization <p>10-9. Which of the following is NOT an exposure controlling factor in motion-picture photography?</p> <ol style="list-style-type: none">1. Film speed2. Shutter speed3. f/stop4. Lens filter |
|--|---|

10-10. A motion-picture camera operating at the standard speed with a shutter degree opening of 168 degrees has what approximate shutter speed?

1. 1/500 second
2. 1/250 second
3. 1/100 second
4. 1/50 second

Learning Objective: Recognize basic principles of motion video.

10-11. Motion video has which of the following advantages over motion-picture photography?

1. Film processing is not required
2. It is edited more quickly
3. Videotape is easily duplicated
4. Each of the above

10-12. In a color video camera, what device separates white light into the three primary colors?

1. The color separator
2. The beam splitter
3. The automatic gain control
4. The frequency generator

10-13. What is the aspect ratio of a motion-video frame?

1. 2:1
2. 2:3
3. 3:4
4. 3:5

10-14. What term describes unwanted sounds or electrical interference in an audio or video signal?

1. Dropout
2. Capstan
3. Dub
4. Noise

10-15. What term depicts the smallest single picture element from which an image is constructed?

1. Frame
2. Field
3. Pixel
4. Composite

10-16. In a composite video signal, what does "Y" represent?

1. Yellow
2. Luminance
3. Color
4. Sound

10-17. What is/are the main cause(s) of dropout?

1. Poor microphone connection
2. Dirty heads
3. Imperfections in the tape
4. Both 2 and 3 above

10-18. What component in a video camera serves the same purpose as film in a motion-picture camera?

1. The cathode-ray tube
2. The charged-coupled imaging device
3. The beam splitter
4. The character generator

10-19. One complete television image is composed of what number of fields?

1. One
2. Two
3. Three
4. Four

10-20. A complete charge-forming-and-scanning process within a motion-video camera occurs what number of times per second?

1. 10
2. 20
3. 30
4. 60

- 10-21. Information from what section of a videotape allows the tape to be played on different but similar types of video players?
1. Control track
 2. Video monitor
 3. Video synchronizer
 4. Helical control
- 10-22. The Hi8 system is completely compatible with all other recording systems.
1. True
 2. False
-
- Learning Objective: Identify guidelines used when shooting motion-picture photography.
-
- 10-23. You recorded a scene on a camcorder and the image appears grainy and flat. This appearance probably occurred due to which of the following causes?
1. A high-speed videotape was used
 2. The scene brightness level was too high
 3. The scene brightness level was too low
 4. The gain was accidentally increased during recording
- 10-24. In which of the following situations should you manually focus a camcorder while recording a scene?
1. When the subject is extremely backlit
 2. When the scene contains little contrast
 3. When moving objects pass between the camera and the subject
 4. Each of the above
- 10-25. Which of the following focal-length lenses should you use while shooting a motion-media scene from a moving boat?
1. 15mm
 2. 25mm
 3. 50mm
 4. 75mm
- 10-26. What is the first rule of panning with a motion-media camera?
1. Pan from left to right
 2. Pan only when using a fast shutter speed
 3. Pan only when necessary
 4. Pan with a short focal-length lens
- 10-27. Primary movement refers to the visual effect of motion that is created by what source?
1. Single camera
 2. Multiple cameras
 3. Computer graphics
 4. The subject
- 10-28. What motion-media shot is used to tell where the action takes place?
1. ELS
 2. LS
 3. MS
 4. CU
- 10-29. What motion-media shot is used to tell what action is taking place?
1. ELS
 2. LS
 3. MS
 4. CU
- 10-30. What motion-media shot is used to present only action of primary interest?
1. ELS
 2. LS
 3. MS
 4. CU

- 10-31. You made several shots of a subject using different camera angles. However, in one shot the background appears much different and looks as though it was shot in a different location. What rule of videography did you violate?
1. Action match
 2. Shot variety
 3. Continuity
 4. Sequential shooting
- 10-32. The subject of a video is shown moving directly toward the viewer. What type of screen direction is portrayed?
1. Forward
 2. Neutral
 3. Head on
 4. Nondirectional
- 10-33. What type of shot is made when the video camera is moved to follow a subject creating neutral screen direction?
1. Traveling abreast
 2. Constant screen direction
 3. Tracking
 4. Direction of travel
- 10-34. You are videotaping a baseball game. During the game, you shot several scenes of a boy eating a hot dog. This is what type of shot?
1. Reestablishing
 2. Establishing
 3. Cutaway
 4. Cut in
- 10-35. You are videotaping a soccer game. During the game, one of the players kicks the ball into the face of the referee. During halftime, you shoot a reenactment of the event. This is what type of shot?
1. Reestablishing
 2. Establishing
 3. Cutaway
 4. Cut in
- 10-36. As a Navy Photographer's Mate, you can expect most of your motion-media work to be of the uncontrolled-action type.
1. True
 2. False
- 10-37. What is the purpose of slating videotape?
1. To identify the film
 2. To ensure the camera is operating at the proper speed
 3. To take up slack in the cassette
 4. To color balance the camera on a neutral-gray colored object
- 10-38. A slate should be recorded for what minimum number of seconds?
1. 30
 2. 20
 3. 3
 4. 10
- 10-39. What form must accompany all media products forwarded to a Still and Motion-Media Records Center?
1. Video/film data sheet
 2. Visual information caption sheet
 3. Photographic job order
 4. NAVAIR form 12700
- 10-40. Videotapes should be stored in what manner?
1. Upright only
 2. Horizontally but not more than five high
 3. Horizontally but not more than ten high
 4. It makes no difference since videotapes are extremely durable

Learning Objective: Recognize security procedures used in Navy imaging facilities.

- 10-41. Security-related information pertaining to the Navy is contained in what instruction?
1. OPNAVINST 5290.1
 2. OPNAVINST 5510.1
 3. SECNAVINST 3150.6
 4. SECNAVINST 5212.5
- 10-42. Only those Photographer's Mates with a security clearance are responsible for safeguarding classified material.
1. True
 2. False
- 10-43. Security classifications are categorized in what number of designations?
1. One
 2. Two
 3. Three
 4. Four
- 10-44. What is the highest security classification?
1. Cryptographic
 2. Cosmic
 3. Exclusion
 4. Top Secret
- 10-45. At a Las Vegas hotel, you shot several rolls of film about sailors conducting themselves in actions that are unbecoming. These photographs could be detrimental to their careers and cause them much embarrassment. What classification, if any, should these photographs bear?
1. Secret
 2. Confidential
 3. For Official Use Only
 4. None

- 10-46. A roll of film that contains images of classified information should be marked in what manner?
1. On the emulsion side beneath each frame
 2. On the emulsion side at the beginning and end of the roll
 3. On the base side beneath each frame
 4. On the base side at the beginning and end of the roll
- 10-47. Classified 8x10-inch prints should be marked with the appropriate classification in what number of places?
1. One
 2. Two
 3. Three
 4. Four
- 10-48. A classified videotape should be marked appropriately in what location(s)?
1. At the beginning of the videotape only
 2. At the end of the videotape only
 3. On the tape case only
 4. At the beginning and end of the videotape as well as on the tape case
- 10-49. As a Photographer's Mate, you must protect classified material by what means?
1. Censorship and transmission
 2. Cryptographic and transmission
 3. Censorship and physical
 4. Physical and cryptographic
- 10-50. A record of destruction of Top Secret material must be retained for what number of years?
1. 1
 2. 2
 3. 3
 4. 4

- 10-51. What type of security area requires the strictest access control?
1. Restricted
 2. Controlled
 3. Limited
 4. Exclusion
- 10-52. What person is directly responsible for safeguarding classified material in an imaging facility?
1. The division officer
 2. The department head
 3. The commanding officer
 4. The security manager
- 10-53. Which of the following items should NOT be stored in a class A vault?
1. Top Secret
 2. Secret
 3. Confidential
 4. Imprest funds
- 10-54. The combination to a safe used to store classified material must be changed at an interval not to exceed what period of time?
1. 1 year
 2. 6 months
 3. 3 months
 4. 1 month
- 10-55. Which of the following combinations should NOT be used for a safe containing classified material?
1. 6-37-50
 2. 5-10-15
 3. 22-47-9
 4. 2-53-12
- 10-56. When a safe is taken out of service, it should be reset to what combination?
1. 50-25-50
 2. 25-50-25
 3. 10-20-30
 4. 5-10-15
-
- Learning Objective: Recognize administrative procedures used in Navy imaging facilities.
-
- 10-57. Navy imaging administrative and operating procedures are contained in what instruction?
1. OPNAVINST 5290.1
 2. NAVEDTRA 13014
 3. SECNAVINST 3150.6
 4. NAVAIRSYSCOMINST 10700.2
- 10-58. The job order number in the job order log should be reset annually to 000001 on what date?
1. 1 January
 2. 1 April
 3. 1 August
 4. 1 October
- 10-59. The job order form serves what purpose?
1. As a customer receipt
 2. As an authority to perform work
 3. As a record of expenditures
 4. Each of the above
- 10-60. A color negative is identified by what VIRIN code?
1. SCN
 2. VPS
 3. CLN
 4. CLR
- 10-61. You are preparing the VIRIN for an unclassified, color slide that was shot on 10OCT93. Which of the following examples is appropriate for the slide?
1. N0341-SPT-93-000020
 2. N0341-SPT-94-000020
 3. N0341-SPT-93-000020-UC
 4. N0341-SCS-94-000020

10-62. The VIRIN of a videotape cassette should be recorded at the beginning of the tape for a minimum of what viewing time, in seconds?

1. 5
2. 10
3. 15
4. 30

10-63. All Navy imaging products forwarded to a Visual Information Records Center for preaccessioning must be accompanied by what form?

1. DD Form 10700
2. DD Form 2537
3. DD Form 1348
4. OPNAV 5290/1

Learning Objective: Identify methods used to mount prints.

10-64. Normally, prints are mounted in which of the following ways?

1. With all borders equal
2. With the top border being the widest
3. With the bottom border being the widest
4. With a mounting board that has loud, contrasting color

10-65. Which of the following adhesives should you use to mount photographic prints on a mounting board?

1. Rubber cement
2. Gum arabic
3. Paste
4. Glue

COURSE COMPLETION/DISENROLLMENT FORM
(Refer to instructions in front of course)

PLEASE PRINT CLEARLY

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NONRESIDENT TRAINING COURSE (NRTC)

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YOU SHOULD RETAIN THE TRAINING MANUAL AND THE ASSIGNMENT BOOKLET IF THEY ARE NOT CLASSIFIED. If CLASSIFIED, submit the material to your command for proper disposition of CLASSIFIED material. A letter of satisfactory completion will be issued to you after your last assignment is received and processed. This form should be included when you send in the last assignment. If the training manual and NRTC courses are designated with distribution statements B, C, D, E, F, or X, and you decide to dispose of the material, you must destroy the material to prevent disclosure of contents or reconstruction of the document.

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☐ OTHER REASON (Specify) :

PRIVACY ACT STATEMENT

Under authority of Title 5, USC 301, information regarding your military status is requested to assist in processing your comments and prepare a reply. This information will not be divulged, without written authorization, to anyone other than those within DOD for official use in determining performance.

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NETPMSA 1550/31 (Rev. 2-93)

STUDENT COMMENT SHEET

THIS FORM MAY BE USED TO SUGGEST IMPROVEMENTS, REPORT COURSE ERRORS, OR TO REQUEST HELP IF YOU HAVE DIFFICULTY COMPLETING THE COURSE.

FROM: _____ Date _____
SSN _____
NAME (Last, first, M.I.)
RANK, RATE, CIVILIAN

STREET ADDRESS, APT #

CITY) STATE _____ ZIP CODE
To: COMMANDING OFFICER
NETPMSA CODE 0316
6490 SAUFLEY FIELD RD
PENSACOLA FL 32509-5237

Subj: PHOTOGRAPHY (BASIC), NAVEDTRA 82700

1. The following comments are hereby submitted:

PRIVACY ACT STATEMENT

Under authority of Title 5, USC 301, information regarding your military status is requested to assist in processing your comments and prepare a reply. This information will not be divulged, without written authorization, to anyone other than those within DOD for official use in determining performance.

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PRINT OR TYPE

TITLE _____ NAVEDTRA _____

NAME _____ ADDRESS _____
 Last First Middle Street/Ship/Unit/Division, etc.

RANK/RATE _____ SOC. SEC. NO. _____ City or FPO State Zip
 DESIGNATOR _____ ASSIGNMENT NO. _____

☐ USN ☐ USNR ☐ ACTIVE ☐ INACTIVE OTHER (Specify) _____ DATE MAILED _____

SCORE

1	2	3	4		1	2	3	4		1	2	3	4				
T	F				T	F				T	F						
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	26	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	51	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	27	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	52	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	28	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	53	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	29	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	54	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	30	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	55	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	31	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	56	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	32	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	57	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	33	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	58	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	34	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	59	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	35	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	60	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	36	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	61	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	37	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	62	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
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14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	39	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	64	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	40	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	65	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
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17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	42	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	43	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	68	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	44	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	69	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
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21	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	46	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	71	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
22	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	47	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	72	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	48	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	73	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
24	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	49	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	74	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
25	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	75	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

THIS FORM MAY BE LOCALLY REPRODUCED

